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Bats of the Kootenai National Forest, Montana

A Report to:

USDA Forest Service

Kootenai National Forest
506 U.S. Highway 2 West
Libby, Montana 59923

Submitted by

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ABSTRACT

Bats of the Kootenai National Forest, Montana were surveyed with ultrasonic detectors during 145 detector-nights at 134 sites in July, August, and September 1995, supplementing similar efforts in 1994 (54 sites total). Twenty sites were also sampled with mist nets. Many of the sites surveyed were within 200 m of water (rivers, streams, beaver ponds, marshes), but less than 40% of the sites were actually abutting wetland habitat. Most sites surveyed were in stands of mixed conifers, and special effort was made to sample in old-growth and mature forest. Twelve mine adits at six sites were also investigated for bat use.

Bats were detected during 96 detector-nights at 93 sites in 1995, supplementing detections at 40 sites in 1994. Bats were more likely to be detected in old-growth and mature forest stands than in "disturbed" (i.e., seed-tree cut, clearcut, and burned sites, of recent to pole-sapling stages) stands in 1995. The pattern was similar for bat detector data from 1994 and 1995 combined. Much of the pattern between the presence of bats and forest-stand structure was attributable to *Myotis* sp.; the difference was not statistically significant for any identifiable bat species except *M. evotis*, although all species were equally or more often detected in older, less-disturbed stands. The presence and activity level of bats in riparian sites was about equal to that in old-growth/mature forest stands.

Eight bat species were identified in 1995: *Myotis californicus, M. evotis, M. volans, M. yumanensis, Lasionycteris noctivagans, Eptesicus fuscus, Lasiurus cinereus,* and *Corynorhinus (=Plecotus) townsendii. M. yumanensis* was previously undocumented for the Kootenai National Forest. Most *Myotis* species cannot be distinguished from one another with bat detectors, the survey tool most frequently used in 1995; unidentified *Myotis* were detected at 82 sites. As many as six species (*M. yumanensis, M. thysanodes, M. lucifugus, M. volans, M. californicus,* and *M. ciliolabrum)* may have been present and included in this grouping. Field surveys with mist nets (previously in 1993, and during the 1995 field season) revealed the presence of all but *Myotis thysanodes* in the above group of *Myotis* species on the Kootenai National Forest, and also documented *M. evotis* and *Lasionycteris noctivagans. Myotis* sp., *M. evotis, Lasionycteris noctivagans* and *Eptesicus fuscus* were detected on all six Districts of the Kootenai National Forest in 1995. Five or six species were identified on all Districts in 1995 except the Fortine District, with only three species.

Combined results from the 1993, 1994 and 1995 surveys showed the presence of ten species of vespertilionid bat on the Kootenai National Forest. Currently, all ten species have been documented only on the Cabinet District, but six species (*M. evotis, M. lucifugus, Lasionycteris noctivagans, Eptesicus fuscus, Lasiurus cinereus, Corynorhinus townsendii*) have been detected on all Forest Districts.

Little is known about the reproductive activities of bats on the Kootenai National Forest, but ten species (*M. yumanensis, M. lucifugus, M. evotis, M. volans, M. californicus, M. ciliolabrum, Lasionycteris noctivagans, Eptesicus fuscus, Lasiurus borealis,* and *Corynorhinus townsendii*) may breed on Forest Service land. Overwinter occurrence and distribution of bats on the Kootenai National Forest remain virtually unknown.

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ACKNOWLEDGMENTS

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INTRODUCTION

Bats rank behind only rodents and carnivores in mammalian diversity over much of western North America; this is also true for the Pacific Northwest. Ten species of insectivorous bat are known to occur in northwestern Montana, with the possibility that two additional species will be found in the region following further survey effort. Bats often occur in forested landscapes like those covering much of northwestern Montana, but the significance of forest structure for bats is only now being clarified (e.g., Christy and West 1993, Gellman and Zielinski 1996, Mattson et al. 1996, Perkins and Cross 1988, Thomas 1988, Thomas and West 1991, Wunder and Carey 1996). Because timber harvest practices alter the landscape mosaic, effective management of bats requires knowledge of their habitat requirements. Thus, there exists a need for more information on the distribution and abundance of bats in western Montana, especially in forested landscapes. Forest managers must also direct attention to the bat fauna because *Corynorhinus* (=*Plecotus*) *townsendii*, a species present in much of the region, is on the U. S. Forest Service Sensitive Species list and, as such, has special legal status.

In the summers of 1994 and 1995 a survey of bats occurring on the Kootenai National Forest in Flathead, Lincoln, and Sanders counties, Montana was conducted by the Montana Natural Heritage Program, expanding on preliminary efforts in 1993 (Roemer 1994) to determine species presence and distribution on the different forest Districts. The field work in 1994-1995 differed from the 1993 study by emphasizing the use of ultrasound detectors. Their use permitted a more rigorous sampling of bat activity in a variety of forested habitats. Of special interest was bat presence in forest stands of different structure. The current report presents the results of the 1995 field season, with the 1994 results (Hendricks et al. 1995) subsumed herein. The survey includes data published previously, and should form the basis for further inventory and monitoring efforts.

METHODS

Historical records of bats from northwestern Montana and adjacent areas of Idaho and Canada were obtained from the literature (see Bibliography). These records provide data on breeding status, habitat use, seasonality of occurrence, and distribution. Museum records, other than those previously published or from northwestern Montana, are not included in this report. Collecting in Montana has been sporadic, and the number of bat specimens from the Kootenai National Forest area is minimal.

Field work in 1994 and 1995 on the Kootenai National Forest was conducted from mid-July to mid-September. Ultrasound detectors were used in both years and represent the primary survey technique. Mist-netting was also employed in 1995, and used by Roemer (1994) in 1993. Thomas and West (1989) provide a general discussion of sampling methods for bats. Each method has strengths and weaknesses for survey work, with no single method being definitive. Mist-netting has the advantage of allowing in-hand identification of individuals and collection of data on sex and reproductive condition, neither of which are obtainable with bat detectors. Some bats may escape capture in nets, however, and some species present at a particular site may go undetected. Detectors can determine the presence of species that may be missed during mist-netting, but they are not without drawbacks. Call duration, time between calls, call structure, and call frequency can vary significantly with habitat and between individuals (Erickson 1993), often making species identification difficult. On the Kootenai National Forest, *Myotis evotis* was the only species of *Myotis* which could be distinguished from other members of the genus with accuracy using a bat detector. Ideally, a combination of mist-nets and bat detectors would be employed at a given site in order to obtain the most accurate picture of distribution. Mist-netting is time-consuming, however, and therefore permits fewer sites to be surveyed within the allotted time period.

Microchiropteran bats use a variety of ultrasonic vocalizations as echolocation aids for navigation and prey capture. Fortuitously, a number of studies have determined that the signals emitted by many species of bats can be used to distinguish among species (e.g., Barclay 1986, Fenton and Bell 1981, Fenton *et al.* 1983, MacDonald *et al.* 1994). This characteristic permits the assessment of species-presence during inventory work through use of portable ultrasound bat detectors.

ANABAT II bat detectors (Titley Electronics, Ballina, Australia) were used during the 1994 and 1995 field seasons. These detectors are sensitive to broadband ultrasonic calls common in bat vocalizations (usually 20-180 kHz) . Ultrasonic signals in the range of bat vocalizations are captured, converted to an audible frequency (up to 10 kHz), and recorded on magnetic tape. Detector units (consisting of the detector, timer/tape-driver, and a voice-activated cassette tape recorder) were set up before dusk near bodies of water and forest openings (where bat activity would be expected) and left in place overnight; usually one cassette tape was sufficient to record activity at a single site. Detectors were sensitive to bats within a minimum range of 20 m. Recorded tapes were returned to the laboratory and analyzed on an IBM compatible PC using an ANABAT II ZCA Interface Module and software. Assignment of vocalizations to a particular species of bat was achieved by matching field recordings with a reference set of calls obtained

from captured individuals, in addition to matching call characteristics with those reported in the literature.

At the time detector units were placed we recorded 1) an index of sky conditions from 0-6 (clear to showers), 2) Beaufort wind scale from 0-5 (no wind to winds 19-24 mph), and 3) ambient temperature (see Appendix 1). We assumed that conditions at the time units were placed provided an index of nocturnal conditions.

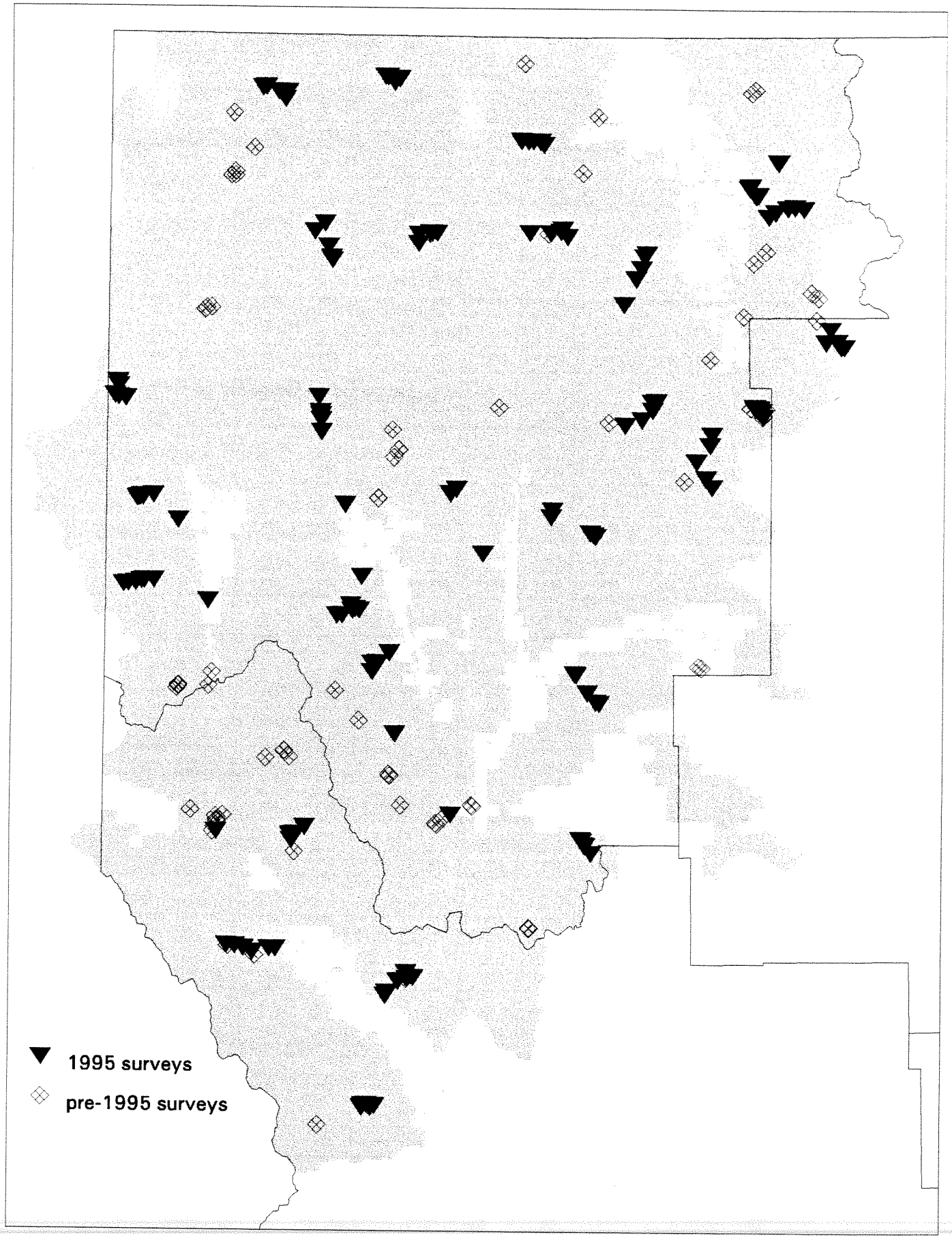
Mist-nets were set singly or in pairs and run for 1.5 to 2 hours beginning at dusk. Netting was usually conducted near a water source or where bat activity would be concentrated. Nets were set across creeks, beaver ponds, an open field, and a mine adit. Some mines were examined for bat activity, but potential roosts in caves or tree cavities were not checked, despite the presence of several in the region. Mine inspection included visual examination and entry if possible, use of ultrasound bat detectors near the portals in most cases, and use of mist-nets in one case. Use of detectors and nets at mines followed procedures employed at other localities.

An attempt was made to visit the six Districts of the Kootenai National Forest (Cabinet, Fisher River, Fortine, Libby, Rexford, and Three Rivers) each year, but coverage was not uniform across all Districts. Survey sites were chosen based on accessibility and the presence of water nearby, as bats tend to concentrate their foraging activity over water sources where insects are abundant (all bats in this region are insectivorous). However, forest clearings or narrow corridors within forest stands were also monitored. Habitat data were collected for each site (see field form in Appendix 1), and an attempt was made to sample different cover types.

Sample sizes from different habitats were too few to analyze separately other than in a broad-spectrum manner. Habitat data were placed into three general forest-structure categories (old-growth/mature, "disturbed", "other"). "Disturbed" stands comprised all recent to pole-sapling stages in seed-tree cut, clearcut, and burn stands, whereas the "other" category was comprised of habitats not encompassed by the first two categories (e.g., young forest, mixed conifer/deciduous stands, aspen stands, etc.). The "other" category included too few sites for use in statistical analyses of bat activity in forest of different structure. Each category pooled data from all forest types (e.g., Douglas-fir, western redcedar, western larch, ponderosa pine, Engelmann spruce, subalpine fir, grand fir), although most sites sampled were in mixed-conifer stands. Riparian sites were included as a fourth category for some comparisons with forested categories, particularly old-growth/mature stands. Riparian sites were located within forested areas but the vegetation was dominated by typical deciduous phreatophyte genera such as cottonwood (*Populus*), birch (*Betula*) and willow (*Salix*). The next level of analysis for future studies should be of bat presence in stands of different forest structure *within* a forest type. Statistical analyses, where used, follow standard procedures described in Sokal and Rohlf (1981), with statistical significance assumed when $P < 0.05$.

Bat Survey Locations

On or near the Kootenai National Forest, Montana



Survey locations from the Montana Natural Heritage Program, May 17, 1996

RESULTS AND DISCUSSION

Bat Detector Surveys

Species Richness--A total of 54 sites in 1994 and 134 sites in 1995 was checked for nocturnal bat activity using ultrasound bat detectors: 9 sites in July, 63 in August, and 116 in September. Number of sites surveyed on each District, with years combined, was Cabinet (34), Fisher River (28), Fortine (32), Libby (28), Rexford (21), and Three Rivers (45) (see Appendix 2). All sites were sampled with ANABAT II ultrasonic bat detectors. Bats were detected at 133 (70.7%) of the sites: 40 (74.1%) in 1994, 93 (69.4%) in 1995. The proportion of sites where bats were detected did not differ ($G = 0.412$, df = 1, $P > 0.5$) between years .

Five species of vespertilionid bat (common names usually follow Jones *et al.* 1986) were identified using ultrasound bat detectors each year during the field surveys (see Appendix 3): long-eared myotis (*Myotis evotis* - 28 sites), silver-haired bat (*Lasionycteris noctivagans* - 45 sites), big brown bat (*Eptesicus fuscus* -57 sites), hoary bat (*Lasiurus cinereus* - 13 sites), Townsend's big-eared bat (*Corynorhinus townsendii* - 36 sites). In addition, *Myotis* sp. was detected at 107 sites.

Number of bat species detected at a site ranged from one to five (assuming *Myotis* sp. represented a single species other than *M. evotis* at each site where detected). One species was detected at 34 sites, two species at 35 sites, three species at 36 sites, four species at 17 sites, and five species at 11 sites; a mean of 2.5 $\pm$ 1.2 species/site (= species richness) was detected at sites where bats were present during the two years. Species richness was 3.1 $\pm$ 1.3 in 1994 and 2.3 $\pm$ 1.1 in 1995; frequency distributions of species richness differed significantly between years (G = 13.616, df = 4, $P < 0.01$).

Several explanations for the difference in species richness between years are possible. First, distinguishing bat calls may have been more conservative in 1995, as experience with their interpretation increased. We have no way to check this, so we will not discuss this possibility further except to note that observer bias is always present to some degree. Second, bat activity may have been depressed in 1995 due to some sampling artifact, such as inclement or colder weather on nights sampled. Neither wind nor sky conditions at the time bat detectors were placed differed significantly between years (G tests, $P > 0.1$), but ambient temperature on evenings sampled was significantly warmer in 1994 (mean = 20.0 $\pm$ 3.2 ^{0}C in 1994, 16.2 $\pm$ 3.0 ^{0}C in 1995; $t = 3.887$, df = 40, $P < 0.001$); bat and night-flying insect activity may be correlated with nocturnal ambient temperature in northwestern Montana. Third, the array of habitats surveyed may have occurred in different proportions each year; greater species richness in 1994 may have been the result of a greater proportion of samples in habitats "attractive" to a greater number and variety of bats. The proportion of gross habitat categories sampled (old-growth/mature, "disturbed", all other habitats including riparian) did not differ significantly between years ($G = 4.566$, df = 2, $P > 0.1$), but pooling habitats at this level could mask finer-scale habitat selection by bats that is biologically significant. In the absence of evidence to the contrary, we assume that the difference between years in species richness was a real property of the environment.

Habitat Use--Bats were detected in most habitat types, from early seral "disturbance" sites in recent clearcuts and burns to mature and old-growth stands, in ponderosa pine and riparian sites at low elevation to Engelmann spruce and subalpine fir at moderate elevation. Riparian, "disturbed", and old-growth/mature sites accounted for 72.3% of the 188 sites sampled with bat detectors, and are the only habitat categories analyzed here. Presence was not uniform across these habitat categories. Bat activity occurred significantly more frequently in old-growth/mature forest (Table 1: 71.4% of sites) than in "disturbed" forest stands (46.7% of sites). Much of the difference was attributable to *Myotis* sp., but nearly all species identifiable were found at a greater proportion of old-growth/mature sites (Table 1), with the exception of the silver-haired bat (*Lasionycteris noctivagans*). The long-eared myotis (*M. evotis*) was the only species where the difference was significant, but larger sample sizes would likely show the same pattern for the big-brown bat (*Eptesicus fuscus*) and hoary bat (*Lasiurus cinereus*). Bats appeared in equal proportions of old-growth/mature and riparian sites (Table 2), except for the hoary bat (*Lasiurus cinereus*), which was present at a significantly greater proportion of old-growth/mature sites (it was not detected in any of the 36 riparian sites).

The patterns of habitat occurrence noted on the Kootenai National Forest are similar to those found in other studies in western North America. Old-growth and mature forests, which have a more complex structure often show greater bat activity than younger or disturbed forest stands (see Perkins and Cross 1988, Thomas 1988, Thomas and West 1991). The availability of large snags, a component infrequently found in young and disturbed stands, is recognized as one of the most important attributes of old-growth and mature forests for bats in western North America (Christy and West 1993, Gellman and Zielinski 1996, Mattson et al. 1996, Wunder and Carey 1996), as large snags provide important roost sites. The lack of association of Townsend's big-eared bat to any forest type during this survey (Table 1 and 2) is consistent with its known habits of roosting in buildings, bridges, caves and mines (Christy and West 1993, Wunder and Carey 1996). This species rarely if ever roosts in tree cavities; forests are used primarily for foraging. The relatively uniform occurrence of the silver-haired bat amongst old-growth/mature, "disturbed", and riparian sites in this survey is unusual relative to other studies (Perkins and Cross 1988, Thomas 1988, Campbell et al. 1996, Mattson et al. 1996) where old-growth is the habitat of greatest occurrence. It is not clear why our findings differ from previous studies.

It is not surprising that activity at riparian sites was equal to that of old-growth/mature sites (Table 2), as bats need water, and insect activity is often high at water sources (Christy and West 1993). The lack of hoary bat activity in riparian sites is surprising, however, as this species routinely roosts and forages among deciduous trees in other areas (Jones et al. 1983). Perhaps the riparian sites we sampled had too few large trees to be attractive.

Table 1. Forest bat presence in old-growth/mature stands and "disturbed" stands (recent to pole-sapling seed-tree cut, clearcut, and burned) on the Kootenai National Forest, 1994-1995, using ANABAT unltrasound detectors.

Species	Old-growth/mature	"Disturbed"	P[a]
All bats	50, 20[b]	14, 16	< 0.025
Myotis sp.	49, 21	12, 18	< 0.01
Myotis evotis	11, 59	0, 30	< 0.005
Lasionycteris noctivagans	14, 56	6, 24	> 0.9
Eptesicus fuscus	21, 49	4, 26	> 0.05
Lasiurus cinereus	7, 63	1, 29	> 0.1
Corynorhinus (=*Plecotus*) *townsendii*	11, 59	4, 26	> 0.5

[a] G test of independence.

[b] n sites where detected, n sites where not detected. Total n = 70 for old-growth/mature, 30 for "disturbed."

Table 2. Forest bat presence in old-growth/mature and riparian stands on the Kootenai National Forest, 1994-1995, using ANABAT ultrasound detectors.

Species	Old-growth/mature	Riparian	P[a]
All bats	50, 20[b]	27, 9	> 0.5
Myotis sp.	49, 21	26, 10	> 0.5
Myotis evotis	11, 59	5, 31	> 0.5
Lasionycteris noctivagans	14, 56	11, 25	> 0.1
Eptesicus fuscus	21, 49	16, 20	> 0.1
Lasiurus cinereus	7, 63	0, 36	< 0.025
Corynorhinus (=*Plecotus*) *townsendii*	11, 59	5, 31	> 0.5

[a] G test of independence.

[b] n sites where detected, n sites where not detected. Total n = 70 for old-growth/mature, 36 for riparian.

Mist-net and Mine Surveys

Mist-netting was conducted on 20 nights at 20 sites between 20 August and 22 September 1995, and resulted in the capture of 24 bats of four species of *Myotis* (7 *M. californicus*, 9 *M. evotis*, 1 *M. volans*, 7 *M. yumanensis*). The Yuma myotis (*M. yumanensis*) was expected but previously unreported for the Kootenai National Forest area.

Twelve mine adits were investigated at 6 sites in 1995. Bats were detected at two of these; 7 *M. evotis* were captured in a mist-net on 26 August at the entrance of the Double Mac Mine (T29N R32W S12NE) in the Libby District, and 1 *Corynorhinus* (=*Plecotus*) *townsendii* was found roosting on 8 September in the upper adit of the Snowstorm Mine (T31N R34W S20SW) in the Three Rivers District.

Field surveys in 1993 (Roemer 1994) identified six bat species on the Kootenai National Forest (*M. californicus, M. ciliolabrum, M. evotis, M. lucifugus, M. volans, Lasionycteris noctivagans*). The capture of *M. yumanensis* in 1995 brings to seven the number of species captured in mist-net surveys on the Kootenai National Forest, and the total number of bat species found on the Forest to ten (Appendix 4).

Summary

Field surveys in 1994 and 1995 detected the presence of eight species of bats on the Kootenai National Forest (Appendix 4). Roemer (1994) identified six species, two of which were not detected during the 1994-1995 field surveys (but one of these species from the Forest was represented previously in museum collections). Thus, the total bat fauna documented for the Kootenai National Forest is ten species; four species (*M. californicus, M. evotis, M. lucifugus, M. yumanensis*) are verified with museum specimens. The ten species present are *M. yumanensis, M. evotis, M. lucifugus, M. californicus, M. ciliolabrum, M. volans, Lasionycteris noctivagans, Eptesicus fuscus, Lasiurus cinereus,* and *Corynorhinus townsendii*.

Most or all species are likely to occur on all Forest Districts. Currently, ten species have been noted on the Cabinet District, eight on Fisher River District, six on Fortine District, eight on Libby District, nine on Rexford District, and seven on Three Rivers District (Appendix 4). *M. evotis, M. lucifugus, Lasionycteris noctivagans, Eptesicus fuscus, Lasiurus cinereus*, and *Corynorhinus townsendii* have been found on all six Districts.

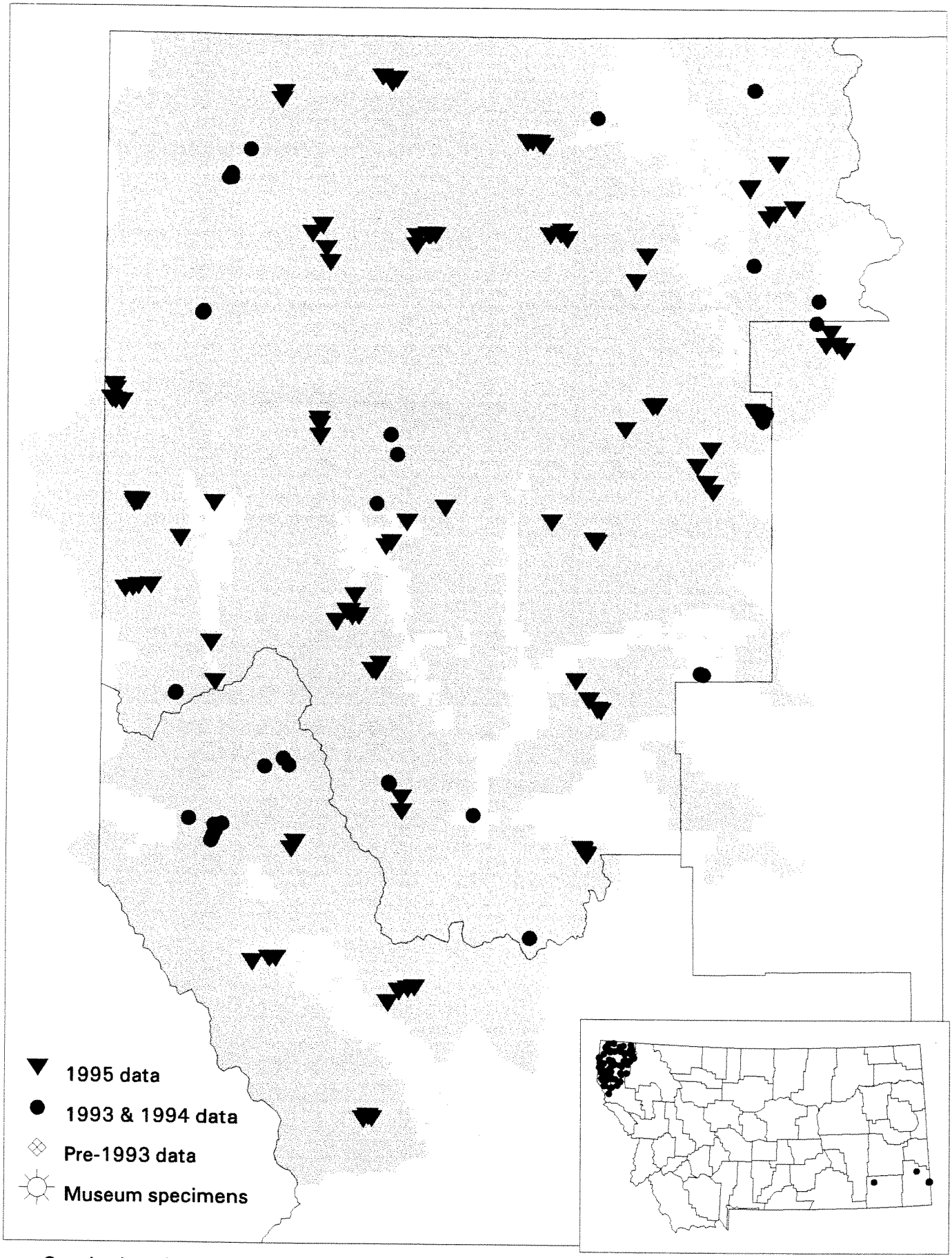
All species are likely to breed on the Kootenai National Forest. Each species is known to breed in Canada to the north, or in western Montana to the east and south (Hoffmann and Pattie 1968, Hoffmann *et al.* 1969, van Zyll de Jong 1985). Lactating females of *M. californicus, M. ciliolabrum, M. evotis*, and *M. volans* were captured on the Kootenai National Forest during summer in 1993 (Roemer 1994), and lactating *M. evotis* were captured in 1995. Which species overwinter on the Kootenai National Forest is unknown.

The Fringed Myotis (*Myotis thysanodes*) may also occur on the Kootenai National Forest, but is considered a rare breeder in western Montana (Hoffmann and Pattie 1968, Hoffmann *et al.* 1969). The Spotted Bat (*Euderma maculatum*) and the Pallid Bat (*Antrozous pallidus*) are found about 230 km to the west in the Okanagan Valley of British Columbia (van Zyll de Jong 1985),

and 600 km to the southeast in the Pryor Mountains (Worthington 1991), but lack of suitable arid habitat on the Kootenai National Forest makes their occurrence unlikely here.

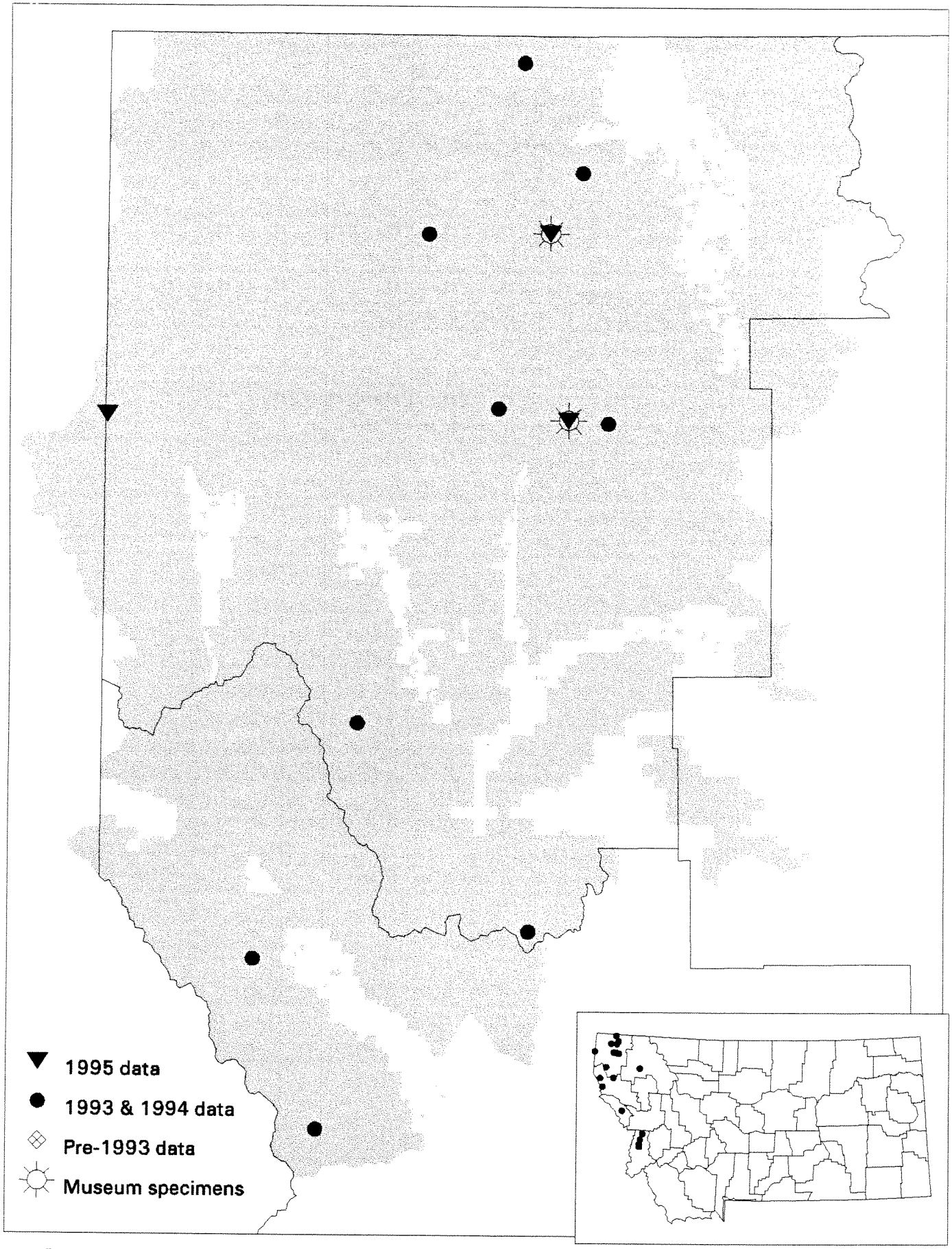
The following species accounts, unchanged from Hendricks et al. (1995) except for addition of data from 1995, summarize distributional and life history information for all (detected and potential) species on the Kootenai National Forest. Distribution maps show results of all known records for the Forest. Heritage Program Global (G) and State (S) rank codes range from 1 (critically imperiled) to 5 (demonstrably secure, though possibly rare in part of the range).

Distribution of Myotis spp. on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program May 17, 1996

Distribution of Myotis californicus on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program

September 05, 1996

Species Present on the Kootenai National Forest

California Myotis (*Myotis californicus*)

Description: Fur full and long, but not glossy. Body variably light tan to nearly black. Hind foot small (< 8.5 mm), but ears relatively long (extending beyond the tip of the nose when pressed forward). Naked part of the snout is about as long as the width of the nostrils when viewed from above. Calcar is keeled.

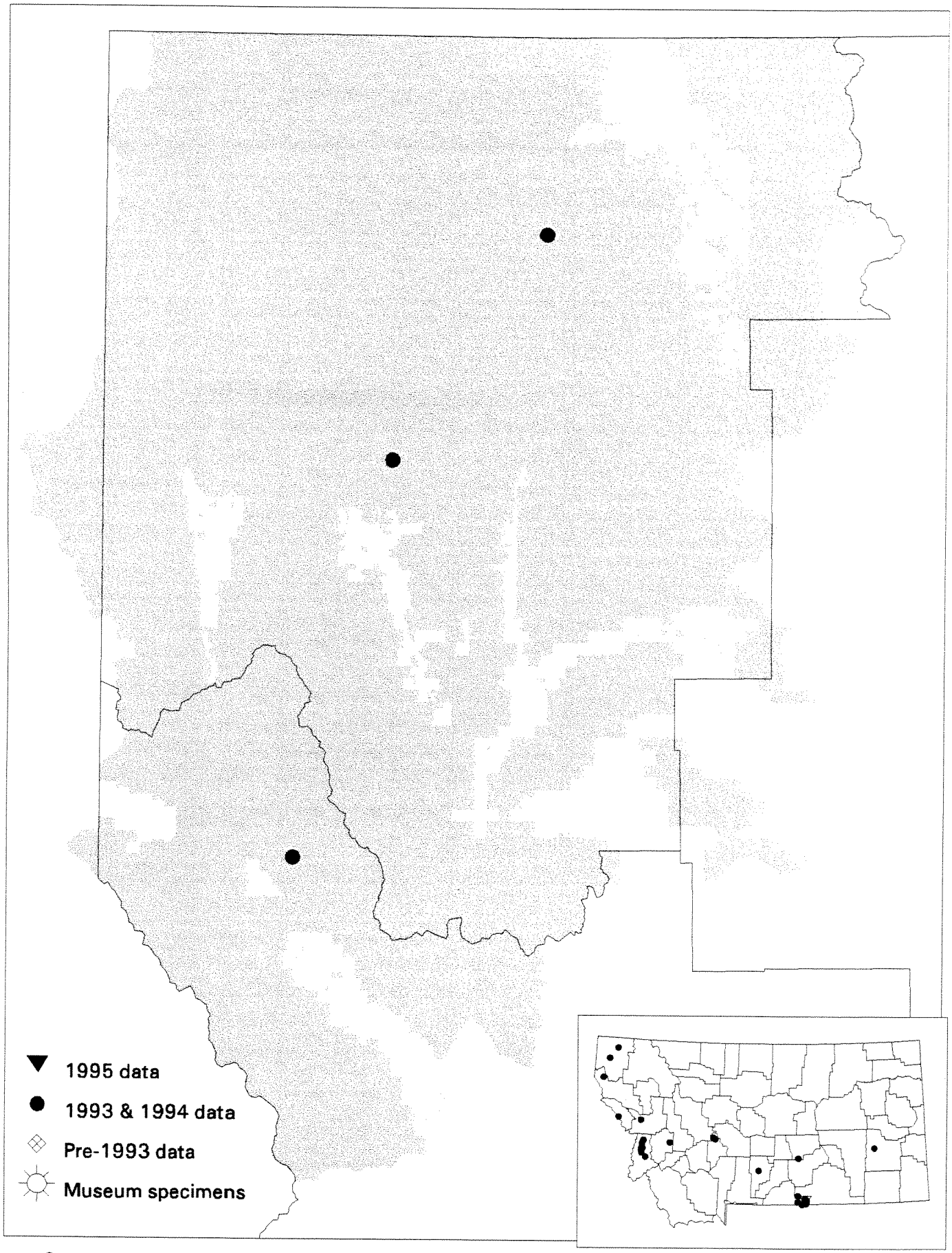
Distribution: Found from southeastern Alaska south to southern Mexico in western North America.

Habitat and Habits: This species is a bat of western lowlands (usually < 1800 m elevation), often found associated with rock-walled canyons, from arid to humid woodlands and forests. Small numbers have been reported hibernating in mines and caves in Oregon, Washington (Perkins *et al.* 1990) and British Columbia (Nagorsen *et al.* 1993). Summer roost sites include buildings, rock crevices, hollow trees, and spaces under loose bark. Females form small maternity colonies, sometimes with *M. lucifugus* (Hoffmann and Pattie 1968), with young born in July. Roemer (1994) captured lactating females on 16 July on the Cabinet District and 27 August on the Fisher River District; this species was netted 28 August, 15 and 19 September 1995. This species emerges from roosts at sunset to feed until dawn. Flight is slow, erratic, and usually low near vegetation or water.

Status: Hoffmann and Pattie (1968) and Hoffmann *et al.* (1969) indicate that the distribution of this bat in Montana is restricted to valleys west of the Continental Divide; specimens are available from Flathead (Kalispell) and Ravalli Counties, and three were collected from Lincoln County in 1995. Eighteen of 113 bats captured by Roemer (1994) on the Kootenai National Forest were this species; seven were captured in 1995. It has been recorded from all but the Fortine and Three Rivers Districts (Appendix 4). While not noted during the 1994 survey, this species may have been present at sites where *Myotis* sp. was detected (most species of Myotis are not easily distinguishable with bat detectors). Present in the Idaho panhandle (Groves and Marks 1985), but probably winters outside of the region. The California myotis is not listed by any federal agency.

Natural Heritage Program rank: G5; S4.

Distribution of Myotis ciliolabrum on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program May 17, 1996

Western Small-footed Myotis (*Myotis ciliolabrum*; formerly *M. leibii ciliolabrum*)

Description: This is the smallest (3-7 g) bat in the area. Dorsal pelage is pale yellowish brown to golden brown, contrasting with the blackish ears (13-15 mm) and membranes. The most notable characteristic other than small size is the strongly-keeled calcar (the spur projecting from the ankle which supports the uropatagium).

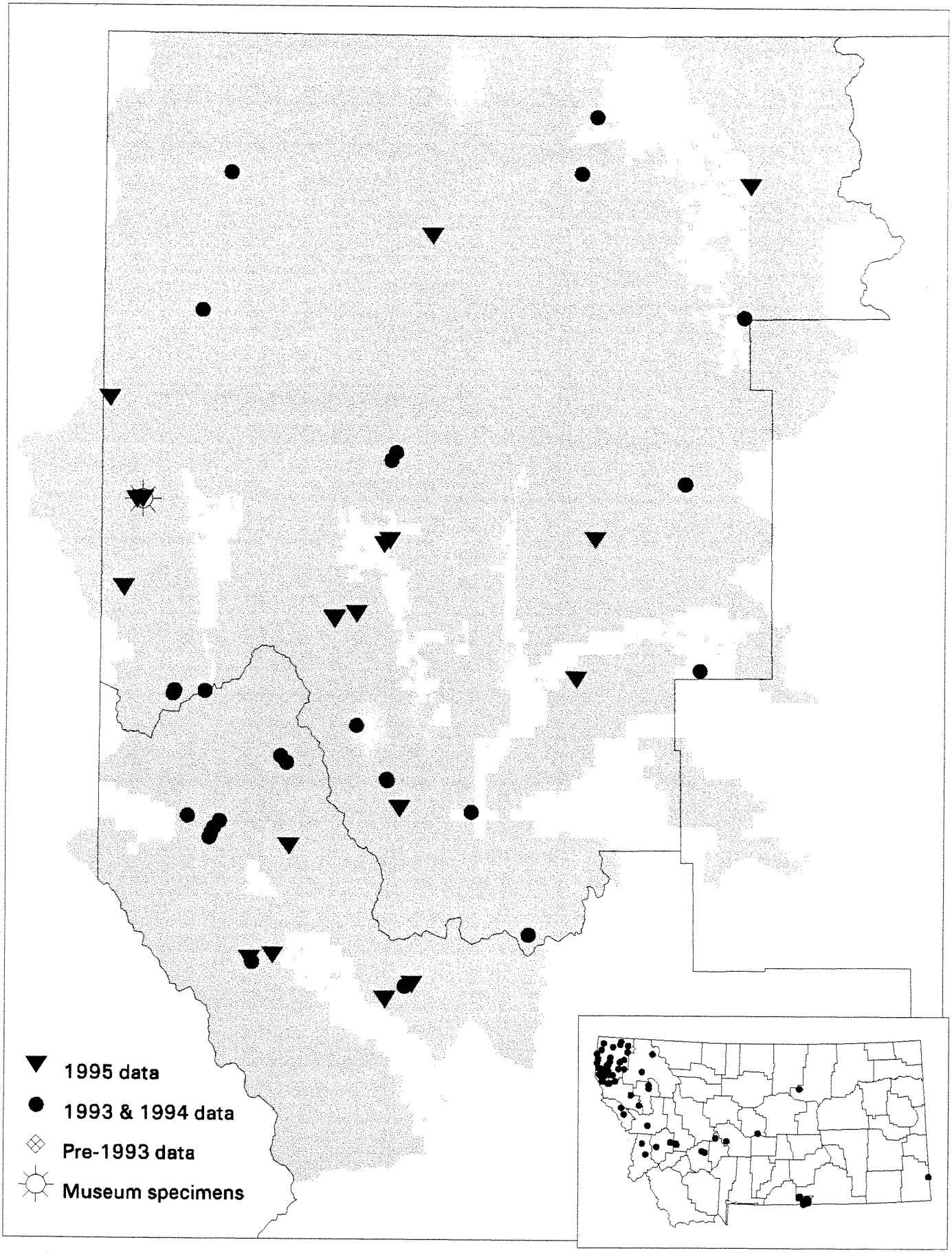
Distribution: Ranges over much of western North America from southern Canada to northern Mexico.

Habitat and Habits: Appears to prefer more arid habitats, where it is associated with cliffs, talus, clay buttes, and steep riverbanks. Roosts in crevices in buildings, trees, rock faces, and clay banks, and may use spaces under and between talus and boulders. Hibernacula include caves and abandoned mines in central Montana (Swenson 1970) and Idaho (Genter 1986). Tends to become active at dusk and forages low along cliffs and rocky slopes rather than over water. Little information is available on reproduction. One of six females collected in Carter County in late June to early July carried an embryo (Jones *et al.* 1973), and a lactating female was collected on 18 July (Lampe *et al.* 1974). Roemer (1994) captured a lactating female on 1 September on the Libby District.

Status: Widespread, but with few records for Montana (Hoffmann and Pattie 1968, Hoffmann *et al.* 1969); appears to be fairly common in Carter and Carbon Counties (Jones *et al.* 1973, Worthington 1991). In western Montana, there are records from Mineral, Missoula, and Ravalli Counties (Hoffmann *et al.* 1969); found at Osoyoos Lake, British Columbia and Lethbridge, Alberta (van Zyll de Jong 1985). Seven of 113 bats captured by Roemer (1994) on the Kootenai National Forest were this species; it has been recorded from the Cabinet, Libby, and Rexford Districts (Appendix 4). While not noted during the 1994 and 1995 surveys, this species may have been present at sites where *Myotis* sp. was detected (most species of Myotis are not easily distinguishable with bat detectors). The western small-footed myotis is not listed by any federal agency.

Natural Heritage Program rank: G5; S4.

Distribution of Myotis evotis on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program November 14, 1996

Long-eared Myotis (*Myotis evotis*)

Description: The ears of this bat are heavily pigmented (black and opaque) and are the longest (17-25 mm) of any American myotis; when pressed forward, ears extend >5 mm beyond the nose. Fur is long and glossy above, paler below. Posterior border of the uropatagium lacks a conspicuous fringe of hair. Weighs 6-8 g.

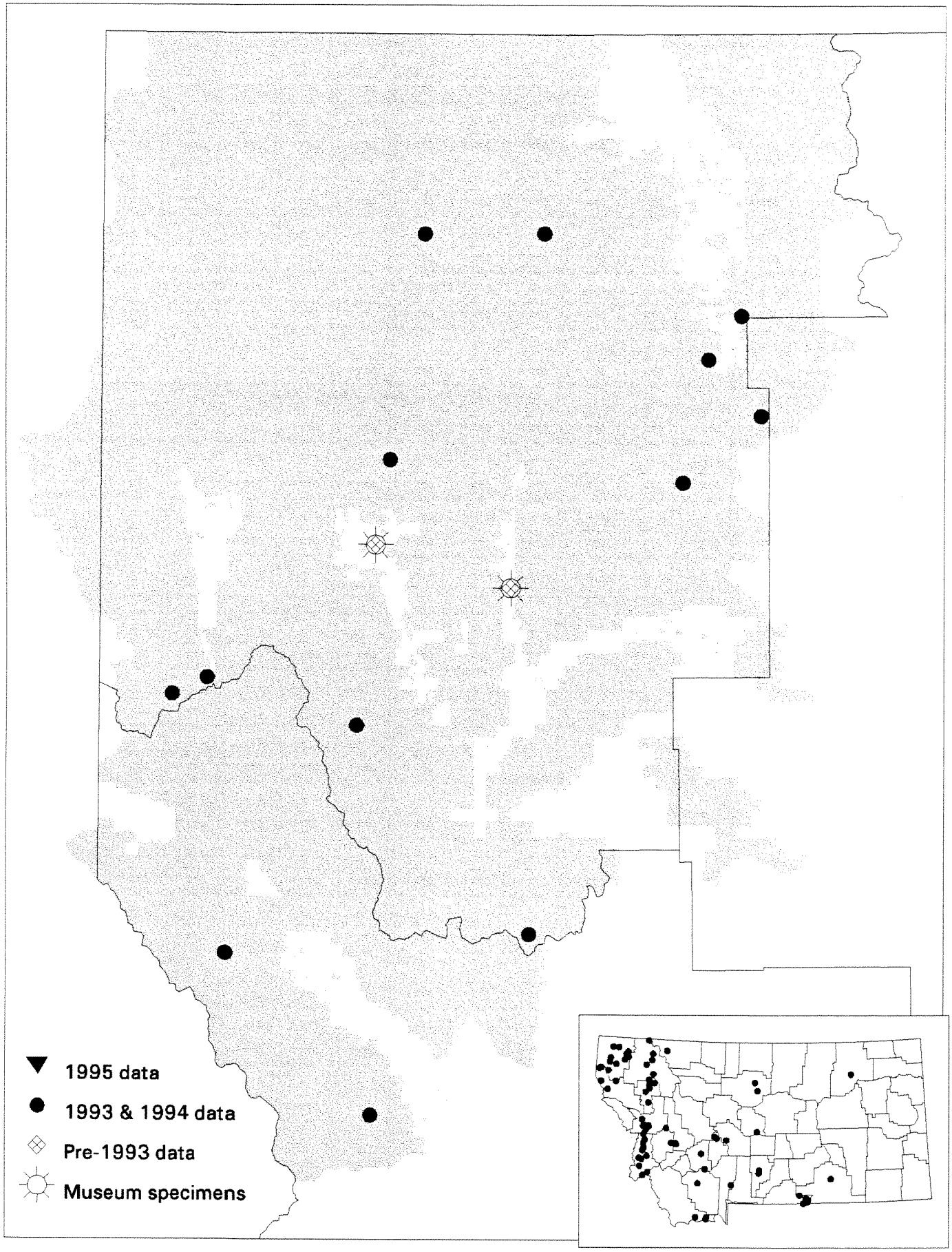
Distribution: Ranges over much of the western North America from southern Canada south to New Mexico, Arizona, and southern California.

Habitat and Habits: This species is especially common around rocky habitat in coniferous forest. Uses sheds, cabins, caves, and abandoned mines for roosting sites; hibernacula are poorly known, but abandoned coal mines have been used in northeastern Montana (Swenson and Shanks 1979); the are no overwinter records from British Columbia (Nagorsen *et al.* 1993). Females apparently form small maternity colonies, though this is poorly documented. Pregnant females have been found in late June and early July in British Columbia (van Zyll de Jong 1985). A colony was found in an abandoned house in Glacier National Park (Lechleitner 1967), and specimens have been obtained in Flathead County around Kalispell (Hoffmann *et al.* 1969); one male was collected on 8 September 1995 in Lincoln County. Roemer (1994) found lactating females on the Rexford District on 29 July and on the Libby District on 25 August; a lactating female was captured on 21 August 1995 on the Rexford District. In 1994-1995 this species was detected at 28 sites in August and September on the Kootenai National Forest (Appendix 3). This species is often encountered at late dusk hunting among trees and over water.

Status: Considered uncommon but widespread in western Montana (Hoffmann and Pattie 1968, Hoffmann *et al.* 1969). Thirteen of 113 bats captured by Roemer (1994) on the Kootenai National Forest were this species; it has been recorded from all Forest Districts (Appendix 4). In 1994-1995, this species was recorded from all Districts (Appendix 4). Present in the Idaho panhandle (Groves and Marks 1985). The long-eared myotis is not listed by any federal agency.

Natural Heritage Program rank: G5; S4.

Distribution of Myotis lucifugus on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program May 17, 1996

Little Brown Myotis (*Myotis lucifugus*)

Description: Dorsal color is dark brown to buffy brown, often with a metallic coppery sheen; ears (13-15 mm) are about the same color as the dorsum and rounded. The tragus is relatively short and blunt. The uropatagium and wings are naked except along the proximal margins. The calcar is not keeled. Weighs 5-9 g.

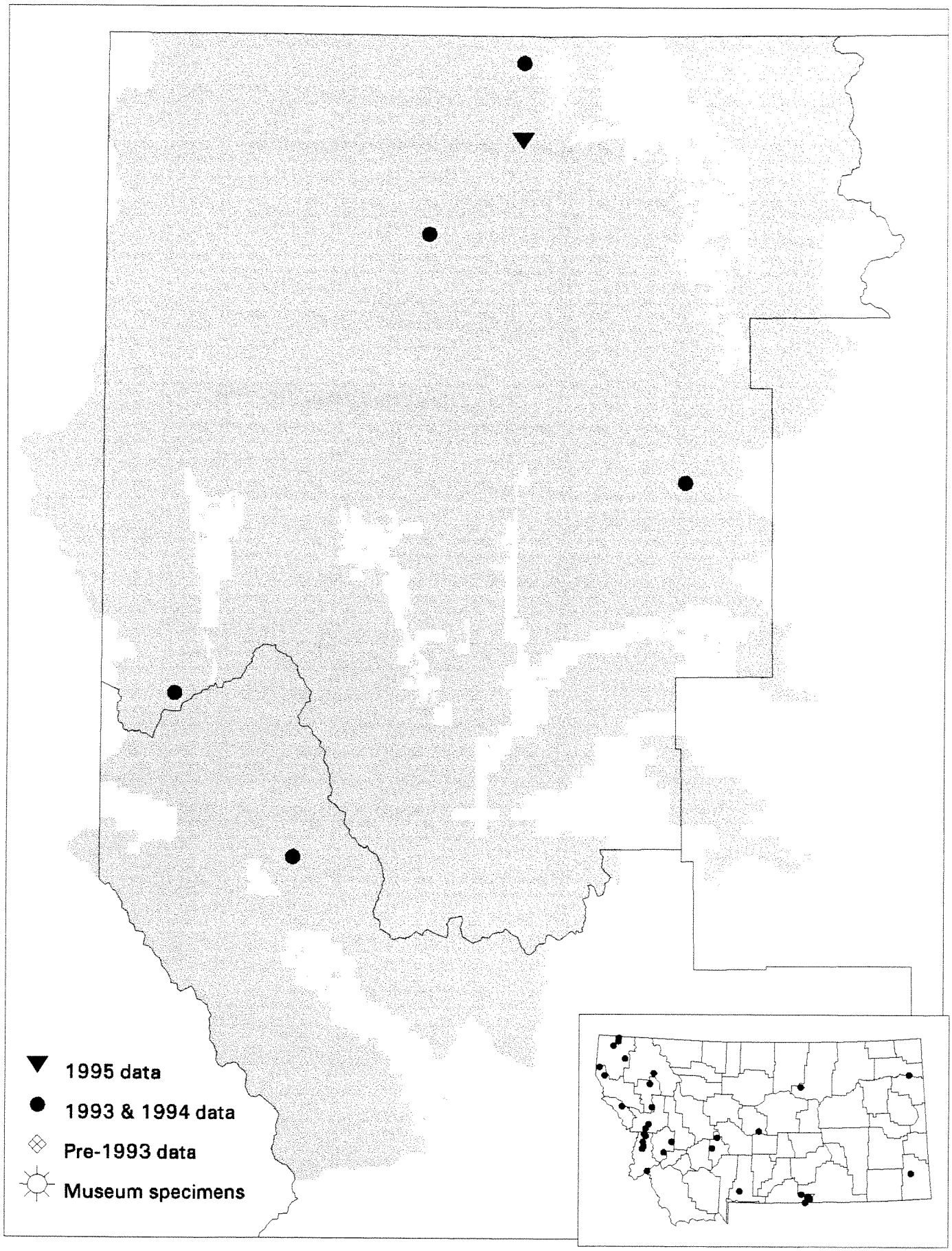
Distribution: From central Alaska south and east through most of Canada and the United States to central Mexico.

Habitat and Habits: Widely distributed in a variety of habitats, but usually near water. Day roosts include caves, under bark, and in buildings. Hibernacula include caves and mines. Two were found hibernating in December near Sidney in eastern Montana (Swenson and Shanks 1979) but most probably leave the state during the winter; several hibernacula have been found in Alberta (Schowalter *et al.* 1979), but there are only a few winter records of individuals for British Columbia (Nagorsen *et al.* 1993). This species prefers to hunt low over water and among trees. Maternity colonies are now most commonly found in buildings and are formed in May; young are born in June and early July at this latitude.

Status: This species is one of the most common bats in North America, and is considered common throughout Montana (Hoffmann and Pattie 1968) and at lower elevations in Glacier National Park to the east (Lechleitner 1967). Fifty-nine of 113 bats captured by Roemer (1994) were this species; it has been recorded from all Forest Districts (Appendix 4). While not noted during the 1994-1995 surveys, this species may have been present at sites where *Myotis* sp. was detected (most species of Myotis are not easily distinguishable with bat detectors). Present in the Idaho panhandle (Groves and Marks 1985). The little brown myotis is not listed by any federal agency.

Natural Heritage Program rank: G5; S5.

Distribution of Myotis volans on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program November 14, 1996

Long-legged Myotis (*Myotis volans*)

Description: A medium-sized (5-9 g) myotis; fur color varies from reddish brown to nearly black. Ears are relatively short (8-16 mm), and blackish brown with rounded tips, just reaching nostrils when laid forward. Tragus is short with a small, rounded basal lobe. Calcar is keeled. Underwing is densely-furred to a line from elbow to knee.

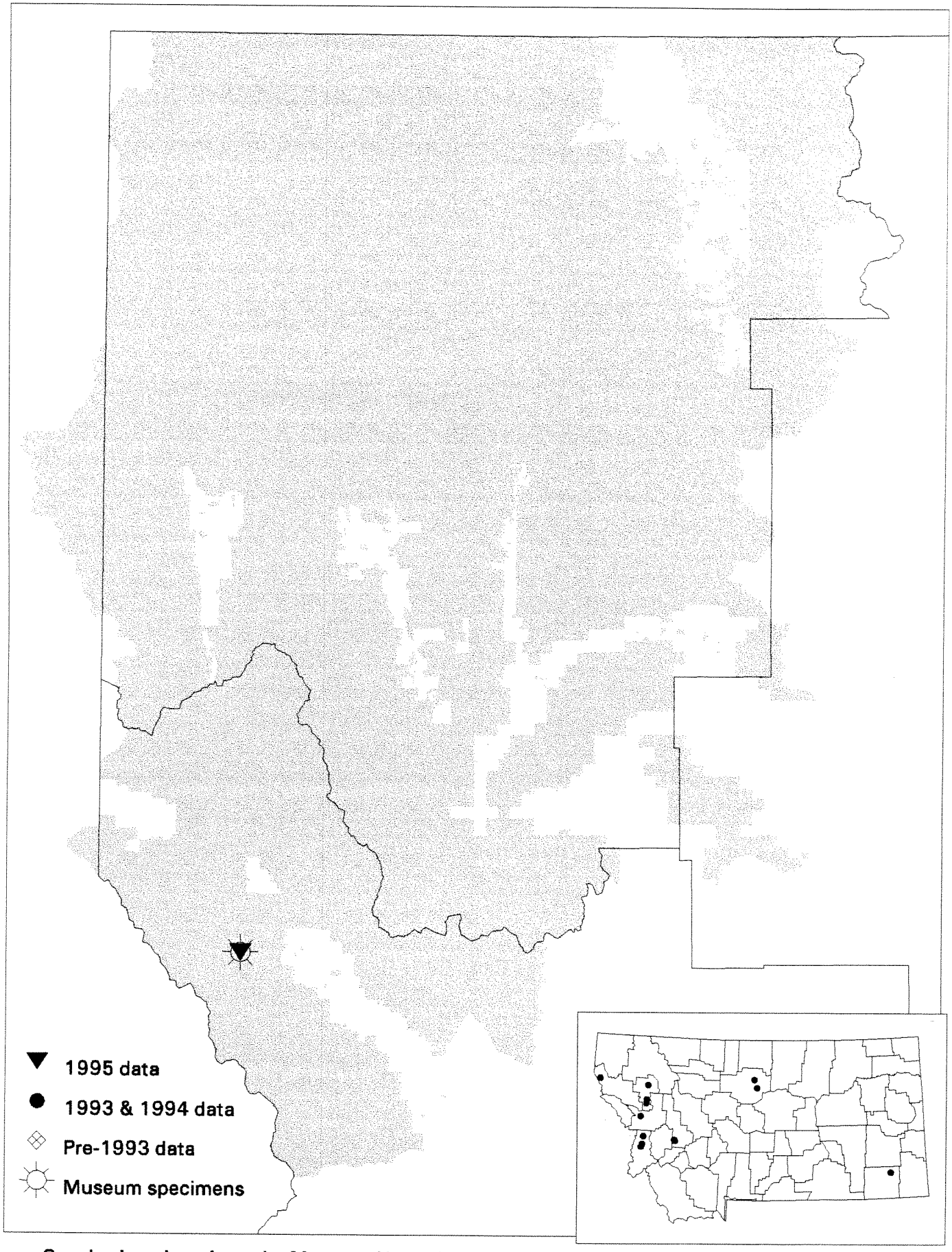
Distribution: From northern British Columbia south to central Mexico and east to the central Great Plains.

Habitat and Habits: Inhabits forested regions in both conifers and mixed conifer-hardwoods. Roosts in trees, rock crevices, mines, caves, cracks and crevices in stream banks, and in buildings. Caves and old mines are used as hibernacula. Swenson and Shanks (1979) found hibernating males in a mine in northeastern Montana in December; there are no winter records of this species in British Columbia (Nagorsen *et al.* 1993), but hibernacula have been found in Alberta west of Edmonton (Schowalter 1980). It is often found at higher elevations up to treeline in summer (Fenton *et al.* 1983, Hoffmann *et al.* 1969, Pattie and Verbeek 1967). In Carter County, Montana, females with enlarged uteri have been collected in late May, females with embryos in late June, and lactating females in July and early August (Jones *et al.* 1973, Lampe *et al.* 1974). A lactating female was caught on the Three Rivers District on 15 July (Roemer 1994), and one was netted on the Rexford District on 22 August 1995. This species feeds over meadows and stream courses after emerging early in the evening.

Status: Considered widespread but uncommon in Montana (Hoffmann and Pattie 1968); apparently scarce in Glacier National Park (Lechleitner 1967). Nine of 113 bats captured by Roemer (1994) were this species; it has been recorded from the Cabinet, Fisher River, Rexford, and Three Rivers Districts (Appendix 4). While not noted during the 1994 survey, this species may have been present at sites where *Myotis* sp. was detected (most species of Myotis are not easily distinguishable with bat detectors). Present in the Idaho panhandle (Groves and Marks 1985). The long-legged myotis is not listed by any federal agency.

Natural Heritage Program rank: G5; S4.

Distribution of Myotis yumanensis on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program September 05, 1996

Yuma Myotis (*Myotis yumanensis*)

Description: Closely resembles *M. lucifugus*, but somewhat smaller with duller, shorter pelage. Basal fur on shoulders is lighter colored, and the ears are paler. Ears do not extend beyond the tip of the nose when pressed forward. Foot relatively large (9-10 mm); the calcar is not keeled.

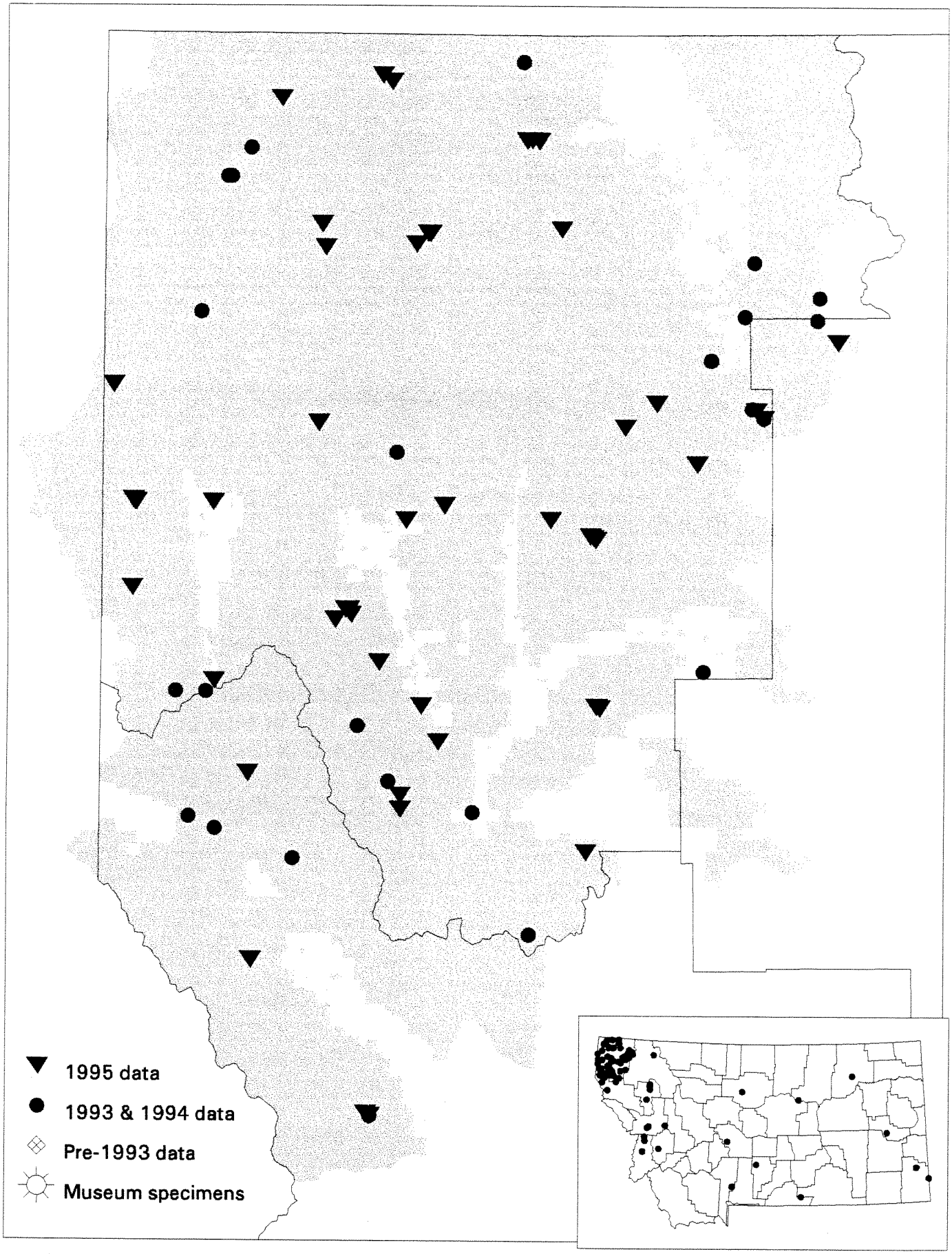
Distribution: In western North America from British Columbia to central Mexico, west of the 100th meridian.

Habitat and Habits: Appears to be closely associated with water, often in relatively open terrain with sparse tree cover. Hibernacula include mines and caves; roosts include buildings, hollow trees and under bark, caves, and mines. Often found in mixed colonies with *M. lucifugus* (Hoffmann and Pattie 1968). Females form maternity colonies, with young born in June in British Columbia (Fenton *et al.* 1980, van Zyll de Jong 1985). Streams are important habitat for this species; it emerges shortly after dusk to forage low over running water.

Status: One of the more common bats in Montana west of the Continental Divide (Hoffmann and Pattie 1968, Hoffmann *et al.* 1969), with specimens from Flathead County (West Glacier) south through the Flathead and Bitterroot Valleys. Seven were netted in 1995 on Marten Creek in the Cabinet District on 4 September, one of which was collected; these constitute the first record of this species on the Kootenai National Forest. While not noted during the 1994 survey, this species may have been present at sites where *Myotis* sp. was detected (most species of *Myotis* are not easily distinguishable with bat detectors). Present in the Idaho panhandle (Groves and Marks 1985). Most individuals probably winter outside of the region; there are single winter records from Oregon (Perkins *et al.* 1990) and British Columbia (Nagorsen *et al.* 1993). The Yuma myotis is not listed by any federal agency.

Natural Heritage Program rank: G5; S4.

Distribution of Lasionycteris noctivagans on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program May 17, 1996

Silver-haired Bat (*Lasionycteris noctivagans*)

Description: This bat can be distinguished from all other bats in the Northern Rocky Mountains by its distinctive coloration. The dorsal pelage is long, blackish brown, and "frosted" with silvery white. Membranes are blackish brown, ears are short (12-17 mm), rounded, and naked. The dorsal surface of the uropatagium is furred. Weighs 8-12 g.

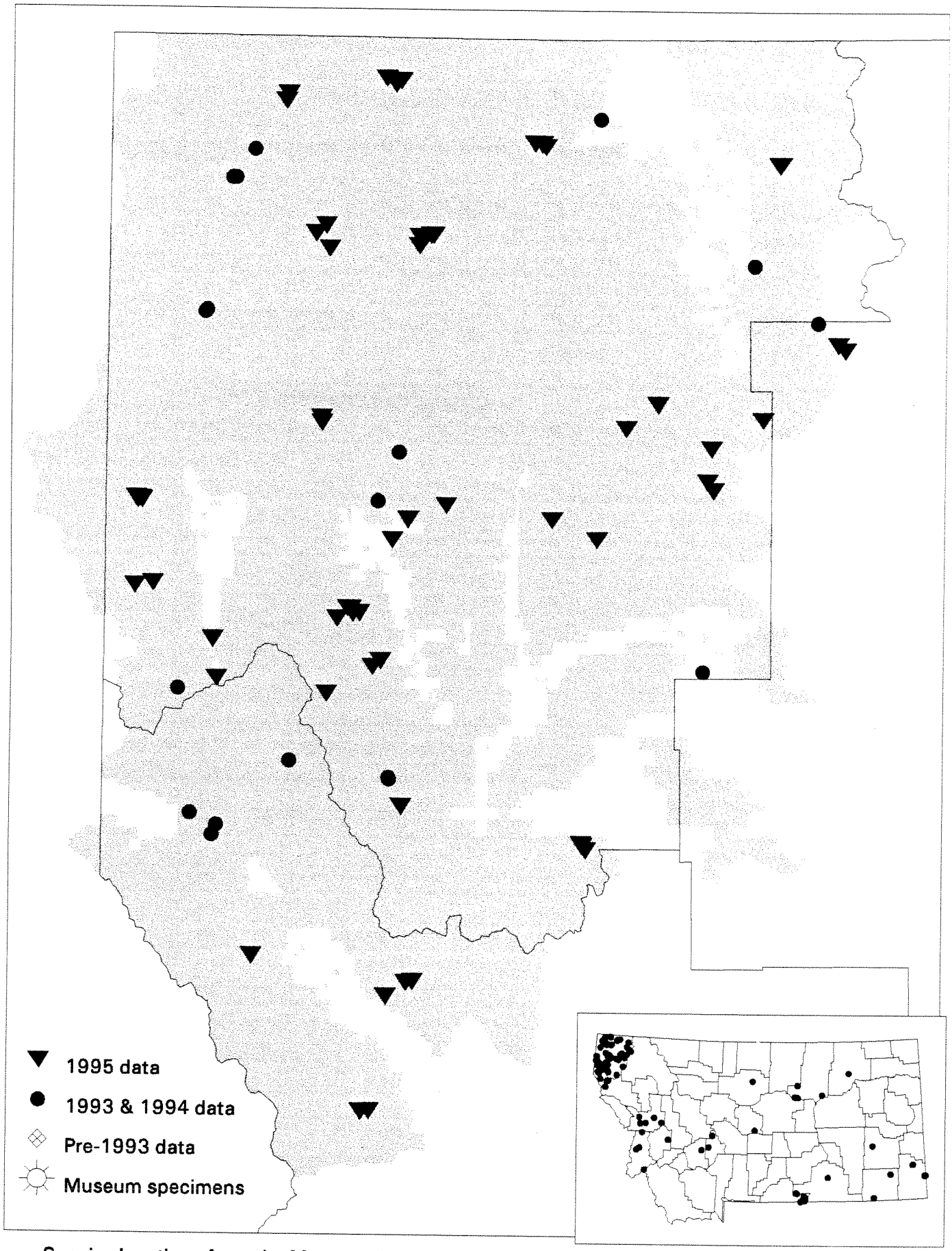
Distribution: Occurs throughout much of the United States and southern Canada north to southeastern Alaska and south to northern Mexico.

Habitat and Habits: Found in a variety of forested habitats, sometimes in open country associated with stands of trees; preferably near ponds and streams. Few summer roosts have been described, but probable sites are behind bark or in tree cavities. This bat is more common in buildings in autumn during migration. Hibernacula include tree cavities, rock crevices and buildings, and infrequently in mines or caves. Most individuals probably migrate out of the area (Izor 1979), but winter records exist for British Columbia (Nagorsen *et al.* 1993). In the Pacific Northwest, summer roosts are probably most abundant in old growth forests (Perkins and Cross 1988, Thomas 1988). This species is solitary, so it is rarely found in groups with more than 3-4 individuals. Mating occurs in autumn, and the young are usually born in June. Volant young and lactating females were caught in mid-July in Carter County, Montana (Jones *et al.* 1973). This species emerges early in the evening to forage around street lights, among trees, and around standing water in a slow leisurely pattern low over the ground. In 1994-1995 this species was detected on the Kootenai National Forest at one site in July, 23 sites in August, and 23 sites in September (Appendix 3).

Status: A fairly common summer resident in coniferous forest habitat throughout Montana (Hoffmann and Pattie 1968), locally common in Carter County, Montana (Jones *et al.* 1973), and probably common in Glacier National Park (Lechleitner 1967). Most individuals probably migrate out of the region in autumn. Seven of 113 bats captured by Roemer (1994) were this species; it has been recorded from all Forest Districts (Appendix 4). This species is present in the Idaho panhandle (Groves and Marks 1985). The silver-haired bat is not listed by any federal agency.

Natural Heritage Program rank: G5; S4.

Distribution of Eptesicus fuscus on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program May 17, 1996

Big Brown Bat (*Eptesicus fuscus*)

Description: This species is easily distinguished from other bats in the Northern Rocky Mountains by its large size (only the Hoary Bat is larger); weight range is 16-30 g. Pelage is brown, with hair extending only slightly onto the wing and tail membranes. The dark-colored ears are of medium size (12-19 mm); the tragus is less than half the length of the ear and is blunt. Calcar is usually keeled. Tip of tail extends about 5 mm beyond tip of uropatagium.

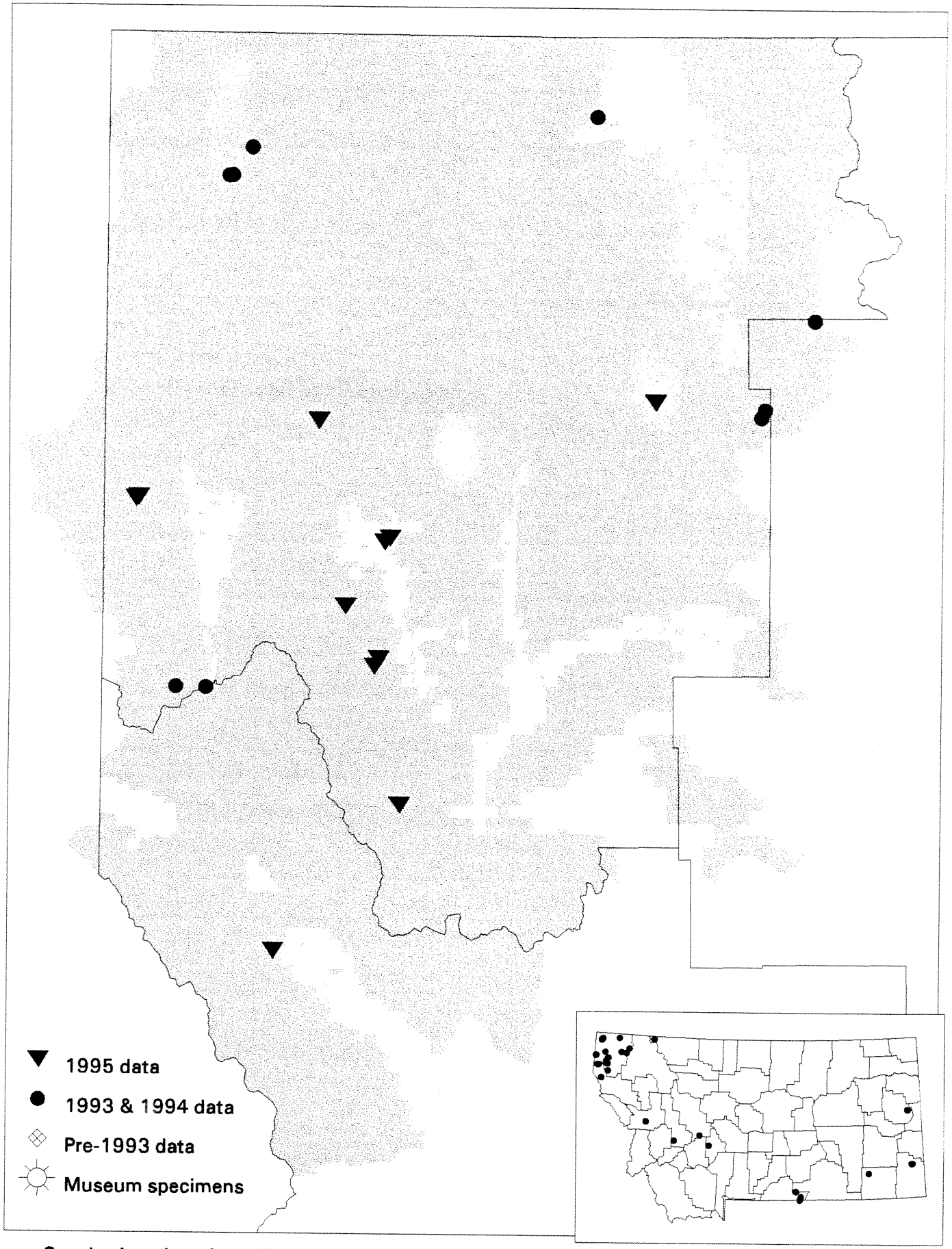
Distribution: Widespread across all of the United States and southern half of Canada south to northern South America.

Habitat and Habits: Found in a variety of wooded and semi-open habitats. Colonial, often forming colonies in tree cavities, rock crevices and buildings. Hibernacula include caves and mines, buildings (attics) and other man-made structures; winter records exist from Alberta (Schowalter and Gunson 1979) and British Columbia (Nagorsen *et al.* 1993). Maternity colonies have been found in attics, barns in northeastern Montana (Swenson and Shanks 1979), and sometimes in tree cavities. Mating occurs in fall and winter. Pregnant females have been collected in Carter County, Montana in late June; lactating females have been collected in early July, and volant young have been collected in mid-July and early August (Jones *et al.* 1973); most young in Alberta are born in late June (Schowalter and Gunson 1979). Emerges at twilight to hunt for an initial period of about five hours, after which activity declines; often forages over meadows, around yard lights, and along tree-lined streets. In 1994-1995 this species was detected on the Kootenai National Forest at one site in July, 27 sites in August, and 30 sites in September (Appendix 3).

Status: Considered less common in Montana than elsewhere in the United States (Hoffmann and Pattie 1968); uncommon in Glacier National Park (Lechleitner 1967), but the most common bat in Carter County, Montana (Jones *et al.* 1973). Present in the Idaho panhandle (Groves and Marks 1985). This species was detected on all Districts of the Kootenai National Forest in 1994 and 1995 (Appendix 4). The big brown bat is not listed by any federal agency.

Natural Heritage Program rank: G5; S4.

Distribution of Lasiurus cinereus on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program May 17, 1996

Hoary Bat (*Lasiurus cinereus*)

Description: Can be distinguished from other bats by a combination of its large size (20-35 g) and distinctive coloration. Dorsal pelage varies from yellowish brown to mahogany, frosted with silver (imparting a "hoary" appearance). Hairs on the neck are longer than those on the back, forming a slight "ruff." The wings are furred outward to the level of the elbows, and the dorsal surface of the uropatagium is covered with dense fur. There is a yellowish white patch on each shoulder and a cream-colored spot near the wrist. Ears are short (17-20 mm) and broad, and the calcar is moderately keeled.

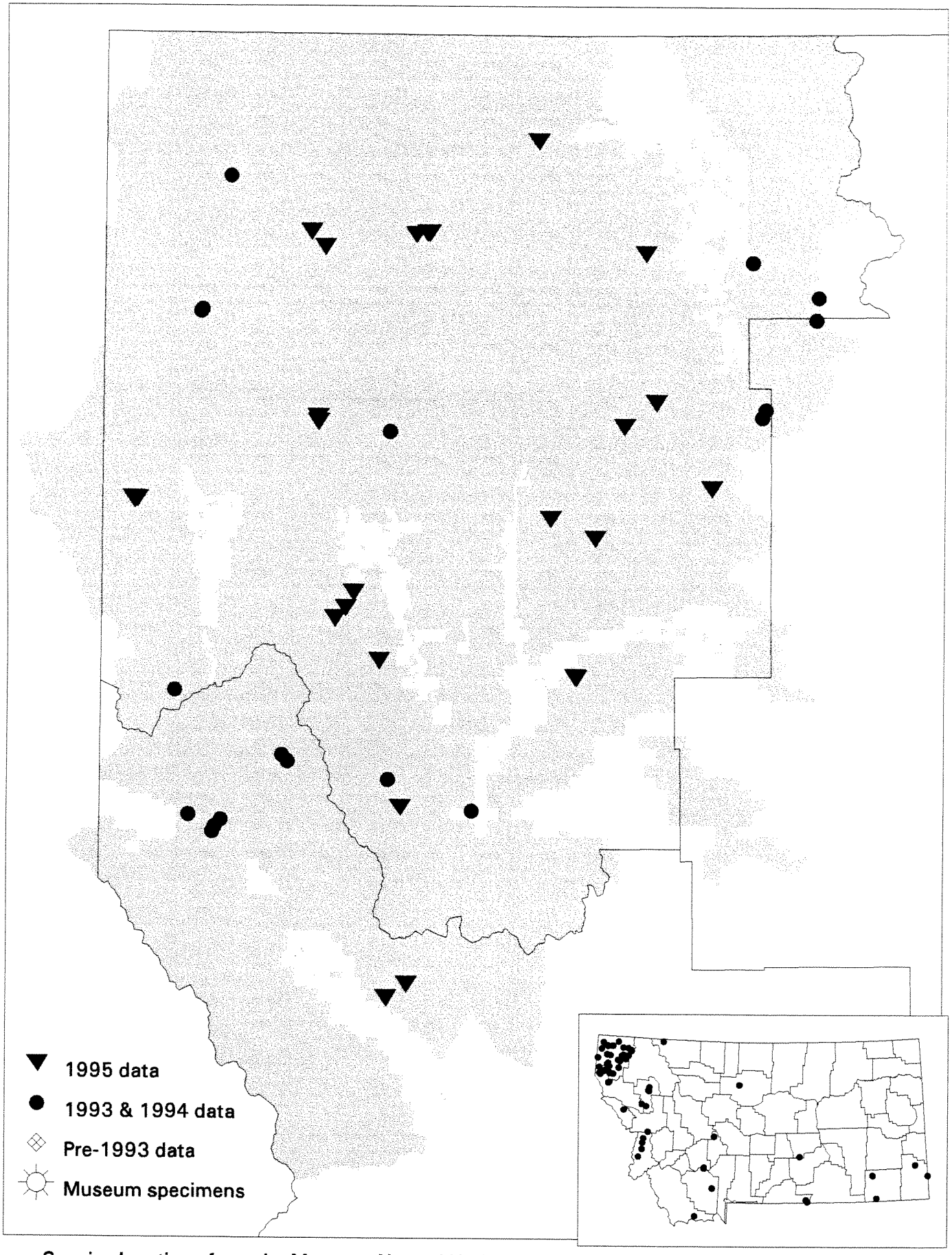
Distribution: Widespread across southern Canada south through the United States to northern South America.

Habitat and Habits: Occurs in many places during migration, but found in wooded habitats during the breeding season. This species has not been found wintering in the region (Nagorsen *et al.* 1993) although there is a winter record from western Washington (Perkins *et al.* 1990); arrives in this region in June (Findley and Jones 1964). Day roosts (about 3-5 m above ground) are mostly in trees, well-covered with vegetation above and open below; apparently both deciduous and coniferous trees are used. Enters caves, mines, and houses only rarely. Solitary or in small family groups during summer, although larger aggregations may form during migration. Mating may take place before migration or on the wintering grounds; females are pregnant by the time they migrate north. Lactating females and volant young have been collected in July in the Long Pines and Ekalaka Hills of Carter County, Montana (Jones *et al.* 1973). This species emerges later in the evening than other species and is a swift flyer; it flies low, occasionally impaling itself on barbed-wire fences. This bat regularly emits a chattering during flight that is audible to the human ear. Usually found at lower elevations; summer roosts may be most abundant in old growth forests (Perkins and Cross 1988, Thomas 1988). In 1994-1995 this species was detected at six sites in August and seven in September (Appendix 3).

Status: Hoffmann and Pattie (1968) indicated that there are relatively few records for Montana, and the species is hypothetical for Glacier National Park (Lechleitner 1967). It is, however, a common summer resident in Carter County (Jones *et al.* 1973), and Worthington (1991) captured several in southern Carbon County. Present in the Idaho panhandle (Groves and Marks 1985). In 1994-1995, this species was recorded from all Districts (Appendix 4). The Hoary Bat is not listed by any federal agency.

Natural Heritage Program rank: G5; S4

Distribution of Plecotus townsendii on the Kootenai National Forest



Species locations from the Montana Natural Heritage Program May 17, 1996

Townsend's Big-eared Bat (*Corynorhinus* [=*Plecotus*] *townsendii*)

Description: Easily distinguished from other bats in the region. A medium-sized (8-12 g) bat with very long (30-39 mm) ears and two prominent masses on the lateral surface of the snout between the eyes. Wings and tail membranes are hairless, dorsal pelage is brownish with individual hairs grayish at the base and cinnamon to brownish at the tip.

Distribution: In western North America, from southwestern Canada to southern Mexico east to western Kansas, Oklahoma, and the Northern Great Plains; also in a narrow band in northern Arkansas east to West Virginia.

Habitat and Habits: Usually found associated with desert shrublands, pinyon-juniper woodlands, and dry to wet coniferous forests. A cave dweller for both day roosts and hibernacula; Lewis and Clark Caverns, Jefferson County, is a regular hibernaculum (Hoffmann and Pattie 1968, Hoffmann *et al.* 1969). Also frequently found in abandoned mines in central and eastern Montana (Hoffmann *et al.* 1969, Swenson 1972, Swenson and Shanks 1979); one individual was found in the Snowstorm Mine (Three Rivers District) on 8 September 1995. Overwinters regularly in British Columbia (Nagorsen *et al.* 1993). A colony was found in late September in an abandoned farm house in Richland County, Montana (Swenson and Shanks 1979). Females form maternity colonies in warmer parts of caves and mines. Mating occurs in fall and winter. Disperses from large caves in late spring to form maternity colonies in smaller caves and buildings. Emerges well after dark and is a slow and agile flyer. In 1994-1995 this species was detected on the Kootenai National Forest at two sites in July, ten sites in August, and 24 sites in September (Appendix 3).

Status: Uncommon in western and central Montana (Hoffmann and Pattie 1968). Found throughout northwestern Montana, with specimens from Flathead and Sanders Counties (Hoffmann *et al.* 1969). Present in the Idaho panhandle (Groves and Marks 1985). This species was found on all Districts during the 1994-1995 surveys (Appendix 4). Townsend's big-eared bat is listed by the U. S. Forest Service (Region 1) as Sensitive.

Natural Heritage Program rank: G4; S2S3 on Species of Special Concern list for Montana.

Species Potentially Present on the Kootenai National Forest

Fringed Myotis (*Myotis thysanodes*)

Description: A medium-sized (5-8 g) large-eared myotis. Dorsal pelage varies from medium brown to pale buff, the individual hairs being grayish-black basally. Ears and membranes are blackish brown and often contrast with the pelage color; ears (17-21 mm) extend 3-5 mm beyond nostrils when pressed forward. Calcar lacks a distinct keel. A fringe of conspicuous pale, straw-colored hairs extends posteriorly 1-2 mm beyond the edge of the uropatagium.

Distribution: From southern British Columbia south to southern Mexico and east to western North and South Dakota.

Habitat and Habits: This bat seems to prefer montane and upland forests, but also appears in desert scrub and some non-wooded areas. Commonly roosts in buildings, but also uses caves and abandoned mines. Hibernacula include old mines and caves. Females form maternity colonies of up to several hundred individuals in summer. These bats are often observed at dusk foraging along water courses and over standing water.

Status: Rare in western Montana in summer (Hoffmann and Pattie 1968); specimens exist for Ravalli, Missoula, and Lewis and Clark Counties (Hoffmann *et al.* 1969). The fringed myotis is not listed by any federal agency.

Natural Heritage Program rank: G5; S3 on Species of Special Concern list for Montana.

RECOMMENDATIONS

1) Due to limited time in the field during the 1994 and 1995 surveys, and the in-hand examination of few bats, the status and distribution of bats on the Kootenai National Forest reported here should not be considered definitive. Although several collections of bats have been made in northwestern Montana over the years, most field efforts in the region have been brief (less than one month) and not comprehensive; the Kootenai National Forest is notable for the absence of data on its bat fauna, although the region is now better-known than many areas in the state. Information from the various surveys is beginning to reveal a more complete picture of the bat fauna and its habitat associations in the region. Additional summer survey work should be done on all Districts, with emphasis on studies designed to determine the importance of forest structure and stand treatments to bats in the Northern Rocky Mountains. More survey work should be conducted in June and July to determine if bat presence or use of each habitat type is constant during summer. Currently, this kind of information is available only for sites in the Cascades, although the survey data presented in this report are suggestive and consistent with those studies. Use of mist-nets in conjunction with ultra-sound detectors is encouraged.

2) Kenelty Cave (see Campbell 1978) in the Fisher River District (T26N R29W S4) was not surveyed in 1994 or 1995; it should be checked to determine if it is presently used by bats, either as a summer roost or hibernaculum. Inspection should be done by experienced bat biologists in order to minimize disturbance during summer and to avoid awakening bats and causing mortality during hibernation in winter. If used by bats, restricted visitor access to this site may be warranted to prevent abandonment.

3) Additional abandoned mines and buildings on Forest Service land should also be checked for hibernating and summer-roosting bats if possible. Underground mines can be checked for summer bat activity by stretching mist-nets across adits at dusk and recording captures. Autumn inspection of mines may reveal the presence of hibernating individuals. Records should be kept of any hibernating or roosting bats found, including locality, species present, number, and date.

4) Life history information and ecology is poorly known for most bat species in northwestern Montana. Any specimens obtained should be preserved. Locality, date, and reproductive status should be documented. This is especially true for the western small-footed myotis (*Myotis ciliolabrum*) and fringed myotis (*Myotis thysanodes*).

5) If Great Horned Owl or other owl roosts and nest sites are known, pellets could be routinely collected and examined for bat remains. A number of nocturnal raptors prey on bats opportunistically (e.g., see Mattson 1995), and sometimes systematically. American Kestrels will also prey on bats, and their pellets could be examined as well.

6) Large trees with natural cavities should not be removed. Besides providing nesting and roosting sites for birds, some bats will use them for the same purposes (see Gellman and Zielinski 1996, Mattson et al. 1996, Wunder and Carey 1996).

7) Because bats are vagile, some species may go undetected unless routine and long-term monitoring is conducted. Such a program would be unprecedented in Montana and could potentially provide a wealth of information on bat biology currently unavailable for this region.

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APPENDIX 1

FIELD FORMS USED IN BAT INVENTORIES

BAT DATA SHEET

TYPE: Anabat ☐ QMC ☐ Other_____

Transect ☐ Point Count ☐ Random ☐

Mist net ☐ (# & Size)_____

Harp Trap ☐ Other _____

Bldg ☐ Cave ☐ Mine ☐ Other _____

Observer_____

Start Date_____ End date_____

Site_____

_____

(record site name and date on tape recorder)

Elevation_____ft

Wind Speed (Beaufort) ☐ Wind Direction_____

Sky Condition ☐ Temp (C) begin____ end_____

Time begin____ end_____

BAT SPP TIME

VEGETATION DATA

Cover Type ☐☐☐☐☐ (name)_____

Small Trees w/in 11.3 m (5-10 cm)	☐☐☐
Medium Trees w/in 11.3m (10-40cm)	☐☐☐
Large Trees w/in 11.3 m (>40 cm)	☐☐☐
Average Canopy ht. (w/in 30m to nearest 5m)	☐☐
Canopy coverage (w/in 30m to nearest 10%)	☐☐☐
Sapling coverage (w/in 30m to nearest 10%)	☐☐☐
Seedling coverage (w/in 30m to nearest 10%)	☐☐☐
Shrub coverage (w/in 30m to nearest 10%)	☐☐☐
Bush coverage (w/in 30m to nearest 10%)	☐☐☐
Grass coverage (w/in 30m to nearest 10%)	☐☐☐
Snag (>20cm dbh) abundance w/in 30m (0=none; 1=1-5; 2= >5)	☐
Road w/in 100 m (0=no, 1=yes)	☐
Edge w/in 100 m (0=no, 1=yes)	☐
Riparian w/in 100 m (0=no, 1=yes)	☐
Rock outcrop w/in 100 m (0=no, 1=yes)	☐
Distance to water (meters)	☐☐☐☐

Pond ☐ Lake ☐ Marsh ☐ bog ☐

Creek ☐ River ☐ Other _____

Comments_____

_____

_____

Beaufort Wind Scale

0 - wind speed <1 mph; smoke rises vertically
1 - 1-3 mph; wind direction shown by smoke drift
2 - 4-7 mph; wind felt on face, leaves rustle
3 - 8-12 mph; leaves & small twigs in constant motion, light flag extended
4 - 13-18 mph; rises dust & loose paper; small branches are moved
5 - 19-24 mph; small trees in leaf sway; crested wavelets on inland waters

Sky Conditions

0 - clear or a few clouds
1 - partly cloudy (scattered or variable sky)
2 - cloudy (broken or overcast)
3 - fog or smoke
4 - drizzle
5 - snow
6 - showers

Metric Conversions

1 ft = 0.3048 m

1 m = 3.2808 ft

33 ft = 10.06 m
66 ft = 20.12 m
for use with topog. clinometer

Your Pacing

5 m =	p
10 m =	p
11.3 m =	p
30 m =	p
50 m =	p
100 m =	p
200 m =	p
300 m =	p

Cover Type Codes

10000. RESIDENTIAL LAND
  10100. urban human dwelling ("blocked" on quad maps; non-native veg)
  10200. rural human dwelling (structures in otherwise native vegetation)
20000. AGRICULTURAL CROP LAND
  20100. irrigated cropland, rangeland, pasture
  20200. dry cropland
30000. RANGELAND
  30100. grassland
    30101. ungrazed or lightly grazed (no evidence of well-worn cattle trails)
    30102. heavily grazed by cattle (patches of bare soil, trails visible)
  30200. sagebrush, shrubsteppe
    30201. ungrazed or lightly grazed (no evidence of well-worn cattle trails)
    30202. heavily grazed by cattle (patches of bare soil, trails visible)
  30300. dry shrubfield
40000. FORESTED LAND
  40100. juniper woodland
    40101. ungrazed or lightly grazed (no evidence of well-worn cattle trails)
    40102. heavily grazed by cattle (patches of bare soil, trails visible)
  40200. ponderosa pine (>80%)
  40300. douglas-fir (>80%)
  40400. western larch (>80%)
  40500. mixed-conifer
    40501. old-growth (snags, down, self-thinned, some huge trees)
    40502. mature (multi-story, trees about 20-40 cm dbh)
    40503. young (shrubs thinned, canopy closed, most trees < 20 cm)
    40504. overstory removed (multi-story, like mature but more open)
    40505. group selection cut; recent
    40506. group selection cut; low shrub 2nd-growth stage
    40507. group selection cut; tall shrub/seedling 2nd-growth stage
    40508. group selection cut; pole-sapling stage
    40509. shelterwood cut; recent
    40510. shelterwood cut; low shrub 2nd-growth stage
    40511. shelterwood cut; tall shrub/seedling 2nd-growth stage
    40512. shelterwood cut; pole-sapling stage
    40513. seed tree cut; recent
    40514. seed tree cut; low shrub 2nd-growth stage
    40515. seed tree cut; tall shrub/seedling 2nd-growth stage
    40516. seed tree cut; pole-sapling stage
    40517. clearcut; recent
    40518. clearcut; low shrub 2nd-growth stage
    40519. clearcut; tall shrub/seedling 2nd-growth stage
    40520. clearcut; pole-sapling stage
    40521. post-fire (standing dead); recent (< 5 yr)
    40522. post-fire (standing dead); low shrub 2nd-growth stage
    40523. post-fire (standing dead); tall shrub/seedling 2nd-growth
    40524. post-fire (standing dead); pole-sapling stage
  40600. lodgepole (>80%)
  40700. spruce-fir
  40800. whitebark/limber pine
  40900. cedar-hemlock
  41000. aspen
  42000. mixed conifer-deciduous mosaic (neither element constitutes a "stand")
50000. RIPARIAN
  50100. marsh, bog
  50200. sedgeland, wet meadow
  50300. willow flats (associated with broad, meandering rivers)
  50400. cottonwood bottomland
    50401. decent shape (lush understory, no visible browse line)
    50402. grazed by cattle (little understory recruitment, sharp browse line)
  50500. streamside riparian (narrow strip of vegetation along perennial stream)
    50501. decent shape (densely vegetated, untrampled stream bank)
    50502. grazed by cattle (stream bank well worn and little vegetated)
  50600. hardwood draw
60000. TUNDRA
  60100. shrub tundra
  60200. herbaceous tundra
70[redacted]

APPENDIX 2

SITES OF ANABAT SURVEYS FOR BATS IN 1994-1995

KOOTENAI NATIONAL FOREST, MONTANA

Appendix 2. Sites of ANABAT surveys for bats on the Kootenai National Forest, Montana in 1994-1995.

District	Location	Date
Cabinet	T22N R31W S3NE	23 Sept 95
	T22N R31W S3NW (2 sites)	23 Sept 95
	T22N R31W S4NE (2 sites)	23 Sept 95
	T24N R30W S6SW	03 Sept 95
	T24N R30W S7NE	03 Sept 95
	T24N R30W S7NW	03 Sept 95
	T24N R31W S12SE	03 Sept 95
	T24N R31W S14SE	03 Sept 95
	T24N R31W S14SW	03 Sept 95
	T25N R32W S28SW	04 Sept 95
	T25N R32W S29SE	04 Sept 95
	T25N R33W S25SE	04 Sept 95
	T25N R33W S26SE	04 Sept 95
	T25N R33W S26SW	04 Sept 95
	T25N R33W S31NW	04 Sept 95
	T26N R32W S2SE	05 Sept 95
	T26N R32W S10NE	05 Sept 95
	T26N R32W S10NW (2 sites)	05 Sept 95
	T26N R32W S10SE	05 Sept 95
	T26N R33W S3NW (2 sites)	19 Sept 94
	T26N R33W S3SW	19 Sept 94
	T26N R33W S9NW	14 Aug 94
	T27N R32W S3SE	18 Sept 94
	T27N R32W S4NE (3 sites)	18 Sept 94
	T27N R32W S5SW	18 Sept 94
	T27N R33W S32NW	14 Aug 94
	T27N R33W S34SW (2 sites)	19 Sept 94
Fisher River	T25N R29W S24NE	22 Aug 94
	T26N R28W S10SE (2 sites)	18 Sept 95
	T26N R28W S14NW (2 sites)	18 Sept 95
	T26N R28W S14SE	18 Sept 95
	T28N R27.5W S13SW (2 sites)	17 Sept 95
	T28N R28W S3NW (2 sites)	17 Sept 95
	T28N R28W S11SW	17 Sept 95

Appendix 2 (cont.). Sites of ANABAT surveys for bats on the Kootenai National Forest, Montana in 1994-1995.

District	Location	Date
Fisher River (cont.)	T29N R26W S31NW (2 sites)	15 Aug 94
	T30N R28W S3NE	14 Sept 95
	T30N R28W S3NW (2 sites)	14 Sept 95
	T31N R26W S7SE	16 Sept 95
	T31N R26W S17NW	16 Sept 95
	T31N R27W S1NE	16 Sept 95
	T31N R29W S25NE	14 Sept 95
	T31N R29W S25SE	14 Sept 95
	T32N R26W S20SW	16 Sept 95
	T32N R26W S29SW	16 Sept 95
	T32N R27W S9NE	15 Sept 95
	T32N R27W S9NW	15 Sept 95
	T32N R27W S9SW	15 Sept 95
	T32N R27W S17SW	15 Sept 95
	T32N R28W S24NE	15 Sept 95
Fortine	T32N R26W S11NE	07 Sept 94
	T32N R26W S11NE	19, 20 Aug 95
	T32N R26W S11SE	07 Sept 94
	T32N R26W S11SE	19, 20 Aug 95
	T32N R26W S12SW (2 sites)	07 Sept 94
	T32N R26W S12SW (2 sites)	19, 20 Aug 95
	T32N R26W S13NW	07 Sept 94
	T32N R26W S13NW	19, 20 Aug 95
	T33N R24W S7NE	22 Sept 95
	T33N R24W S17NE	22 Sept 95
	T33N R24W S17NW	22 Sept 95
	T33N R24W S17SE	22 Sept 95
	T33N R24W S18NW	22 Sept 95
	T33N R26W S1NE	06 Sept 94
	T34N R25W S5NW	30 July 94
	T34N R25W S7NW	30 July 94
	T34N R25W S24SW	06 Sept 94
	T34N R25W S25NE	06 Sept 94
	T35N R25W S6SW	21 Sept 95

Appendix 2 (cont.). Sites of ANABAT surveys for bats on the Kootenai National Forest, Montana in 1994-1995.

District	Location	Date
Fortine (cont.)	T35N R25W S7NW	21 Sept 95
	T35N R25W S7SE (2 sites)	21 Sept 95
	T35N R25W S14SE	20 Sept 95
	T35N R25W S15SE	20 Sept 95
	T35N R25W S15SW	20 Sept 95
	T35N R25W S20SE	20 Sept 95
	T35N R25W S21NW	20 Sept 95
	T36N R25W S28	21 Sept 95
	T37N R25W S29SE (2 sites)	31 July 94
Libby	T26N R30W S2NE	16 Sept 94
	T26N R30W S3SE (2 sites)	16 Sept 94
	T27N R29W S31NE (2 sites)	16 Sept 94
	T27N R31W S13NE (3 sites)	11 Aug 94
	T29N R31W S5NW	26 Aug 95
	T29N R31W S5SE	26 Aug 95
	T29N R31W S5SW	26 Aug 95
	T29N R31W S7NW	26 Aug 95
	T29N R31W S26NW	27 Aug 95
	T29N R31W S33NE	27 Aug 95
	T29N R31W S33SE	27 Aug 95
	T29N R31W S34NW (2 sites)	27 Aug 95
	T29N R32W S12NE	26 Aug 95
	T31N R31W S22NW (2 sites)	08 Sept 94
	T32N R31W S23SW	08 Sept 94
	T32N R31W S35NE (2 sites)	08 Sept 94
	T32N R32W S2SW	13 Sept 95
	T32N R32W S14NW (2 sites)	13 Sept 95
	T32N R32W S14SW	13 Sept 95
	T32N R32W S23SW	13 Sept 95
Rexford	T34N R27W S3SE	15, 16 July 95
	T34N R27W S3SW	15, 16 July 95
	T34N R27W S10SW	15, 16 July 95
	T34N R27W S16SE	15, 16 July 95

Appendix 2 (cont.). Sites of ANABAT surveys for bats on the Kootenai National Forest, Montana in 1994-1995.

District	Location	Date
Rexford (cont.)	T34N R27W S29SE	15, 16 July 95
	T35N R28W S28SE (2 sites)	19 Sept 95
	T35N R28W S29SE	19 Sept 95
	T35N R28W S34NW	19 Sept 95
	T35N R29W S25SE	19 Sept 95
	T35N R30W S26SW	21 Aug 95
	T35N R30W S27SE (2 sites)	21 Aug 95
	T35N R30W S33NE	21 Aug 95
	T35N R30W S33SE	21 Aug 95
	T36N R28W S12NE	17 Aug 94
	T36N R28W S19NE	22 Aug 95
	T36N R28W S19NW	22 Aug 95
	T36N R28W S20SW	22 Aug 95
	T36N R28W S24NE	22 Aug 95
	T36N R28W S24NW	22 Aug 95
Three Rivers	T28N R33W S9NW	21 Aug 94
	T28N R34W S12NE (3sites)	21 Aug 94
	T30N R34W S28NW	06 Sept 95
	T30N R34W S29NW (2 sites)	06 Sept 95
	T30N R34W S30SE	06 Sept 95
	T30N R34W S30SW	06 Sept 95
	T30N R35W S25SE	06 Sept 95
	T31N R34W S19SE	08 Sept 95
	T31N R34W S20NW	08 Sept 95
	T31N R34W S20SW (3 sites)	08 Sept 95
	T31N R34W S21NW	08 Sept 95
	T32N R34W S1NW	28 Aug 95
	T32N R34W S11NE	28 Aug 95
	T32N R34W S12NE	28 Aug 95
	T32N R34W S12NW	28 Aug 95
	T33N R34W S32SE	28 Aug 95
	T34N R31W S6NE	25 Aug 95
	T34N R31W S8NW (2 sites)	25 Aug 95
	T34N R33W S33SE (3 sites)	17 Sept 94

Appendix 2 (cont.). Sites of ANABAT surveys for bats on the Kootenai National Forest, Montana in 1994-1995.

District	Location	Date
Three Rivers (cont.)	T34N R33W S34SW	17 Sept 94
	T35N R31W S30NE	25 Aug 95
	T35N R32W S25SE	25 Aug 95
	T35N R33W S1NW (3 sites)	19, 20 Aug 94
	T36N R32W S30NE	20 Aug 94
	T36N R33W S11NE	20 Aug 94
	T37N R30W S20SW (2 sites)	23 Aug 95
	T37N R30W S28NW	23 Aug 95
	T37N R30W S29NE (2 sites)	23 Aug 95
	T37N R32W S27SW	24 Aug 95
	T37N R32W S28SE	24 Aug 95
	T37N R32W S35NE	24 Aug 95
	T37N R32W S35NW	24 Aug 95
	T37N R32W R35SE	24 Aug 95

APPENDIX 3

BAT SPECIES DETECTED DURING 1994-1995 ANABAT SURVEYS

KOOTENAI NATIONAL FOREST, MONTANA

Appendix 3. Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Myotis sp.	T22N R31W S3NW (Cabinet)	23 Sept 95
	T22N R31W S4NE (Cabinet)	23 Sept 95
	T24N R30W S7NE (Cabinet)	03 Sept 95
	T24N R30W S7NW (Cabinet)	03 Sept 95
	T24N R31W S12SE (Cabinet)	03 Sept 95
	T24N R31W S14SE (Cabinet)	03 Sept 95
	T25N R32W S28SW (Cabinet)	04 Sept 95
	T25N R32W S29SE (Cabinet)	04 Sept 95
	T25N R33W S31NW (Cabinet)	04 Sept 95
	T26N R32W S10NE (Cabinet)	05 Sept 95
	T26N R32W S10SE (Cabinet)	05 Sept 95
	T26N R33W S3NW (Cabinet)	19 Sept 94
	T26N R33W S3SW (Cabinet)	19 Sept 94
	T26N R33W S9NW (Cabinet)	14 Aug 94
	T27N R32W S3SE (Cabinet)	18 Sept 94
	T27N R32W S4NE (Cabinet)	18 Sept 94
	T27N R32W S5SW (Cabinet)	18 Sept 94
	T27N R33W S32NW (Cabinet)	14 Aug 94
	T27N R33W S34SW (Cabinet)	19 Sept 94
	T25N R28W S10SE (Fisher River)	18 Sept 95
	T25N R29W S24NE (Fisher River)	22 Aug 94
	T26N R28W S14NW (Fisher River)	18 Sept 95
	T28N R27.5W S13SW (Fisher River)	17 Sept 95
	T28N R28W S3NW (Fisher River)	17 Sept 95
	T28N R28W S11SW (Fisher River)	17 Sept 95
	T29N R26W S31NW (Fisher River)	15 Aug 94
	T30N R28W S3NE (Fisher River)	14 Sept 95
	T30N R28W S3NW (Fisher River)	14 Sept 95
	T31N R26W S7SE (Fisher River)	16 Sept 95
	T31N R26W S17NW (Fisher River)	16 Sept 95
	T31N R27W S1NE (Fisher River)	16 Sept 95
	T31N R29W S25SE (Fisher River)	14 Sept 95
	T32N R26W S20SW (Fisher River)	16 Sept 95
	T32N R26W S29SW (Fisher River)	16 Sept 95
	T32N R27W S9NE (Fisher River)	15 Sept 95

Appendix 3 (cont.). Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Myotis sp. (cont.)	T32N R27W S9NW (Fisher River)	15 Sept 95
	T32N R28W S24NE (Fisher River)	15 Sept 95
	T32N R26W S11NE (Fortine)	19, 20 Aug 95
	T32N R26W S11SE (Fortine)	19, 20 Aug 95
	T32N R26W S12SW (Fortine)	07 Sept 94
	T32N R26W S12SW (Fortine)	21 Aug 95
	T32N R26W S13NW (Fortine)	07 Sept 94
	T32N R26W S13NW (Fortine)	20 Aug 95
	T33N R24W S7NE (Fortine)	22 Sept 95
	T33N R24W S17NE (Fortine)	22 Sept 95
	T33N R24W S17NW (Fortine)	22 Sept 95
	T33N R24W S18NW (Fortine)	22 Sept 95
	T33N R26W S1NE (Fortine)	06 Sept 94
	T34N R25W S7NW (Fortine)	30 July 94
	T34N R25W S25NE (Fortine)	06 Sept 94
	T34N R25W S6SW (Fortine)	21 Sept 95
	T34N R25W S7NW (Fortine)	21 Sept 95
	T35N R25W S15SE (Fortine)	20 Sept 95
	T35N R25W S20SE (Fortine)	20 Sept 95
	T35N R25W S21NW (Fortine)	20 Sept 95
	T36N R25W S28 (Fortine)	21 Sept 95
	T37N R25W S29SE (Fortine)	31 July 94
	T27N R29W S31NE (Libby)	16 Sept 94
	T27N R31W S13NE (Libby)	11 Aug 94
	T29N R31W S5NW (Libby)	26 Aug 95
	T29N R31W S5SE (Libby)	26 Aug 95
	T29N R31W S5SW (Libby)	26 Aug 95
	T29N R31W S33NE (Libby)	27 Aug 95
	T29N R31W S34NW (Libby)	27 Aug 95
	T29N R32W S12NE (Libby)	26 Aug 95
	T31N R31W S22NW (Libby)	08 Sept 94
	T31N R31W S23SW (Libby)	08 Sept 94
	T32N R31W S35NE (Libby)	08 Sept 94
	T32N R32W S14NW (Libby)	13 Sept 95
	T32N R32W S14SW (Libby)	13 Sept 95

Appendix 3 (cont.). Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Myotis sp. (cont.)	T32N R32W S23SW (Libby)	13 Sept 95
	T34N R27W S3SE (Rexford)	16 July 95
	T34N R27W S16SE (Rexford)	15, 16 July 95
	T35N R28W S28SE (Rexford)	19 Sept 95
	T35N R28W S29SE (Rexford)	19 Sept 95
	T35N R28W S34NW (Rexford)	19 Sept 95
	T35N R30W S26SW (Rexford)	21 Aug 95
	T35N R30W S27SE (Rexford)	21 Aug 95
	T35N R28W S33NE (Rexford)	21 Aug 95
	T35N R28W S33SE (Rexford)	21 Aug 95
	T36N R28W S12NE (Rexford)	17 Aug 94
	T36N R28W S19NE (Rexford)	22 Aug 95
	T36N R28W S19NW (Rexford)	22 Aug 95
	T36N R28W S20SW (Rexford)	22 Aug 95
	T36N R29W S24NE (Rexford)	22 Aug 95
	T28N R34W S12NE (Three Rivers)	21 Aug 94
	T30N R34W S28NW (Three Rivers)	06 Sept 95
	T30N R34W S29NW (Three Rivers)	06 Sept 95
	T30N R34W S30SE (Three Rivers)	06 Sept 95
	T30N R34W S30SW (Three Rivers)	06 Sept 95
	T31N R34W S20NW (Three Rivers)	08 Sept 95
	T31N R34W S20SW (Three Rivers)	08 Sept 95
	T32N R34W S1NW (Three Rivers)	28 Aug 95
	T32N R34W S11NE (Three Rivers)	28 Aug 95
	T32N R34W S12NE (Three Rivers)	28 Aug 95
	T32N R34W S12NW (Three Rivers)	28 Aug 95
	T33N R34W S32SE (Three Rivers)	28 Aug 95
	T34N R31W S6NE (Three Rivers)	25 Aug 95
	T34N R31W S8NW (Three Rivers)	25 Aug 95
	T34N R33W S33SE (Three Rivers)	17 Sept 94
	T35N R31W S30NE (Three Rivers)	25 Aug 95
	T35N R32W S25SE (Three Rivers)	25 Aug 95
	T35N R33W S1NW (Three Rivers)	19, 20 Aug 94
	T36N R32W S30NE (Three Rivers)	20 Aug 94
	T37N R30W S20SW (Three Rivers)	23 Aug 95

Appendix 3 (cont.). Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Myotis sp. (cont.)	T37N R30W S28NW (Three Rivers)	23 Aug 95
	T37N R30W S29NE (Three Rivers)	23 Aug 95
	T37N R32W S35NE (Three Rivers)	24 Aug 95
	T37N R32W S35SE (Three Rivers)	24 Aug 95
M. evotis	T24N R30W S27NE (Cabinet)	03 Sept 95
	T24N R31W S14SE (Cabinet)	03 Sept 95
	T25N R32W S28SW (Cabinet)	04 Sept 95
	T25N R33W S31NW (Cabinet)	04 Sept 95
	T26N R32W S10SE (Cabinet)	05 Sept 95
	T26N R33W S3NW (Cabinet)	19 Sept 94
	T26N R33W S3SW (Cabinet)	19 Sept 94
	T26N R33W S9NW (Cabinet)	14 Aug 94
	T27N R32W S3SE (Cabinet)	18 Sept 94
	T27N R32W S4NE (Cabinet)	18 Sept 94
	T27N R33W S32NW (Cabinet)	14 Aug 94
	T27N R33W S34SW (Cabinet)	19 Sept 94
	T28N R28W S3NW (Fisher River)	17 Sept 95
	T29N R26W S31NW (Fisher River)	15 Aug 94
	T30N R28W S3NE (Fisher River)	14 Sept 95
	T35N R25W S6SW (Fortine)	21 Sept 95
	T27N R29W S31NE (Libby)	16 Sept 94
	T27N R31W S13NE (Libby)	11 Aug 94
	T29N R31W S5SE (Libby)	26 Aug 95
	T32N R31W S35NE (Libby)	08 Sept 94
	T36N R28W S12NE (Rexford)	17 Aug 94
	T28N R33W S9NW (Three Rivers)	21 Aug 94
	T28N R34W S12NE (Three Rivers)	21 Aug 94
	T30N R34W S30SW (Three Rivers)	06 Sept 95
	T31N R34W S20SW (Three Rivers)	08 Sept 95
	T32N R34W S11NE (Three Rivers)	28 Aug 95
	T34N R33W S33SE (Three Rivers)	17 Sept 94
	T35N R33W S1NW (Three Rivers)	20 Aug 94

Appendix 3 (cont.). Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Lasionycteris noctivagans	T22N R31W S3NW (Cabinet)	23 Sept 95
	T25N R33W S31NW (Cabinet)	04 Sept 95
	T26N R33W S3NW (Cabinet)	19 Sept 94
	T27N R33W S32NW (Cabinet)	14 Aug 94
	T25N R29W S24NE (Fisher River)	22 Aug 94
	T26N R28W S14NW (Fisher River)	18 Sept 95
	T28N R27.5W S13SW (Fisher River)	17 Sept 95
	T29N R26W S31NW (Fisher River)	15 Aug 94
	T30N R28W S3NE (Fisher River)	14 Sept 95
	T30N R28W S3NW (Fisher River)	14 Sept 95
	T31N R29W S25SE (Fisher River)	14 Sept 95
	T32N R26W S29SW (Fisher River)	16 Sept 95
	T32N R27W S9SE (Fisher River)	15 Sept 95
	T32N R28W S24NE (Fisher River)	15 Sept 95
	T32N R26W S11SE (Fortine)	07 Sept 94
	T32N R26W S11SE (Fortine)	20 Aug 95
	T32N R26W S13NW (Fortine)	07 Sept 94
	T32N R26W S13NW (Fortine)	20 Aug 95
	T33N R24W S17NW (Fortine)	22 Sept 95
	T33N R26W S1NE (Fortine)	06 Sept 94
	T34N R25W S7NW (Fortine)	30 July 94
	T34N R25W S25 NE (Fortine)	06 Sept 94
	T27N R29W S31NE (Libby)	16 Sept 94
	T27N R31W S13NE (Libby)	11 Aug 94
	T29N R31W S5NW (Libby)	26 Aug 95
	T29N R31W S5SW (Libby)	26 Aug 95
	T32N R31W S35NE (Libby)	08 Sept 94
	T32N R32W S14SW (Libby)	13 Sept 95
	T35N R28W S28SE (Rexford)	19 Sept 95
	T35N R30W S27SE (Rexford)	21 Aug 95
	T35N R30W S33SE (Rexford)	21 Aug 95
	T36N R28W S19NE (Rexford)	22 Aug 95
	T36N R28W S19NW (Rexford)	22 Aug 95
	T36N R29W S24NE (Rexford)	22 Aug 95
	T28N R33W S9NW (Three Rivers)	21 Aug 94

Appendix 3 (cont.). Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Lasionycteris noctivagans (cont.)		
	T28N R34W S12NE (Three Rivers)	21 Aug 94
	T30N R34W S30SE (Three Rivers)	06 Sept 95
	T31N R34W S20SW (Three Rivers)	08 Sept 95
	T32N R34W S1NW (Three Rivers)	28 Aug 95
	T34N R31W S6NE (Three Rivers)	25 Aug 95
	T34N R33W S33SE (Three Rivers)	17 Sept 94
	T35N R31W S30NE (Three Rivers)	25 Aug 95
	T35N R33W S1NW (Three Rivers)	19, 20 Aug 94
	T36N R32W S30NE (Three Rivers)	20 Aug 94
	T37N R30W S20SW (Three Rivers)	23 Aug 95
	T37N R30W S29NE (Three Rivers)	23 Aug 95
	T37N R32W S35SE (Three Rivers)	24 Aug 95
Eptesicus fuscus	T22N R31W S3NW (Cabinet)	23 Sept 95
	T22N R31W S4NE (Cabinet)	23 Sept 95
	T24N R30W S7NW (Cabinet)	03 Sept 95
	T24N R30W S7NE (Cabinet)	03 Sept 95
	T24N R31W S14SE (Cabinet)	03 Sept 95
	T25N R33W S31NW (Cabinet)	04 Sept 95
	T26N R33W S3NW (Cabinet)	19 Sept 94
	T26N R33W S9NW (Cabinet)	14 Aug 94
	T27N R32W S3SE (Cabinet)	18 Sept 94
	T27N R32W S32NW (Cabinet)	14 Aug 94
	T27N R28W S10SE (Fisher River)	18 Sept 95
	T26N R28W S14NW (Fisher River)	18 Sept 95
	T29N R26W S31NW (Fisher River)	15 Aug 94
	T30N R28W S3NE (Fisher River)	14 Sept 95
	T31N R26W S17NW (Fisher River)	16 Sept 95
	T31N R27W S1NE (Fisher River)	16 Sept 95
	T31N R29W S25SE (Fisher River)	14 Sept 95
	T32N R26W S29SW (Fisher River)	16 Sept 95
	T32N R27W S9NE (Fisher River)	15 Sept 95
	T32N R28W S24NE (Fisher River)	15 Sept 95
	T32N R26W S13NW (Fortine)	20 Aug 95

Appendix 3 (cont.). Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Eptesicus fuscus (cont.)	T33N R24W S17NE (Fortine)	22 Sept 95
	T33N R24W S17NW (Fortine)	22 Sept 95
	T33N R26W S1NE (Fortine)	06 Sept 94
	T34N R25W S7NW (Fortine)	30 July 94
	T36N R25W S28 (Fortine)	21 Sept 95
	T27N R29W S31NE (Libby)	16 Sept 94
	T27N R31W S13NE (Libby)	11 Aug 94
	T29N R31W S5NW (Libby)	26 Aug 95
	T29N R31W S5SE (Libby)	26 Aug 95
	T29N R31W S5SE (Libby)	26 Aug 95
	T29N R31W S33NE (Libby)	27 Aug 95
	T29N R32W S12NE (Libby)	26 Aug 95
	T31N R31W S22NW (Libby)	08 Sept 94
	T32N R31W S35NE (Libby)	08 Sept 94
	T32N R32W S14NW (Libby)	13 Sept 95
	T32N R32W S14SW (Libby)	13 Sept 95
	T35N R30W S27SE (Rexford)	21 Aug 95
	T35N R30W S33NE (Rexford)	21 Aug 95
	T35N R30W S33SE (Rexford)	21 Aug 95
	T36N R28W S12NE (Rexford)	17 Aug 94
	T36N R28W S19NE (Rexford)	22 Aug 95
	T36N R28W S19NW (Rexford)	22 Aug 95
	T36N R28W S20SW (Rexford)	22 Aug 95
	T28N R34W S12NE (Three Rivers)	21 Aug 94
	T30N R34W S28NW (Three Rivers)	06 Sept 95
	T30N R34W S30SE (Three Rivers)	06 Sept 95
	T31N R34W S20SW (Three Rivers)	08 Sept 95
	T34N R31W S6NE (Three Rivers)	25 Aug 95
	T34N R33W S33SE (Three Rivers)	17 Sept 94
	T35N R32W S25SE (Three Rivers)	25 Aug 95
	T35N R33W S1NW (Three Rivers)	19, 20 Aug 94
	T36N R32W S30NE (Three Rivers)	20 Aug 94
	T37N R30W S20SW (Three Rivers)	23 Aug 95
	T37N R30W S28NW (Three Rivers)	23 Aug 95
	T37N R30W S29NE (Three Rivers)	23 Aug 95

Appendix 3 (cont.). Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Eptesicus fuscus (cont.)	T37N R32W S35NE (Three Rivers)	24 Aug 95
	T37N R32W S35SE (Three Rivers)	24 Aug 95
Lasiurus cinereus	T25N R32W S28SW (Cabinet)	04 Sept 95
	T32N R27W S9NE (Fisher River)	15 Sept 95
	T32N R26W S12SW (Fortine)	07 Sept 94
	T32N R26W S13NW (Fortine)	07 Sept 94
	T33N R26W S1NE (Fortine)	06 Sept 94
	T29N R31W S34NW (Libby)	27 Aug 95
	T32N R32W S14SW (Libby)	13 Sept 95
	T36N R28W S12NE (Rexford)	17 Aug 94
	T28N R33W S9NW (Three Rivers)	21 Aug 94
	T28N R34W S12NE (Three Rivers)	21 Aug 94
	T31N R34W S20SW (Three Rivers)	08 Sept 95
	T35N R33W S1NW (Three Rivers)	19, 20 Aug 94
	T36N R32W S30NE (Three Rivers)	20 Aug 94
Corynorhinus townsendii	T24N R30W S7NW (Cabinet)	03 Sept 95
	T24N R31W S14SE (Cabinet)	03 Sept 95
	T26N R33W S3NW (Cabinet)	19 Sept 94
	T26N R33W S3SW (Cabinet)	19 Sept 94
	T27N R32W S3SE (Cabinet)	18 Sept 94
	T27N R32W S4NE (Cabinet)	18 Sept 94
	T27N R33W S32NW (Cabinet)	14 Aug 94
	T27N R33W S34SW (Cabinet)	19 Sept 94
	T28N R28W S3NW (Fisher River)	17 Sept 95
	T30N R28W S3NE (Fisher River)	14 Sept 95
	T31N R26W S7SE (Fisher River)	16 Sept 95
	T31N R26W S17NW (Fisher River)	16 Sept 95
	T31N R29W S25SE (Fisher River)	14 Sept 95
	T32N R28W S24NE (Fisher River)	15 Sept 95
	T32N R27W S9NE (Fisher River)	15 Sept 95
	T32N R26W S12SW (Fortine)	07 Sept 94
	T32N R26W S13NW (Fortine)	07 Sept 94
	T33N R26W S1NE (Fortine)	06 Sept 94

Appendix 3 (cont.). Locations of bat species detected during the 1994-1995 ANABAT surveys on the Kootenai National Forest, Montana.

Species	Location	Date
Corynorhinus townsendii (cont.)		
	T34N R25W S7NW (Fortine)	30 July 94
	T34N R25W S25NE (Fortine)	06 Sept 94
	T27N R29W S31NE (Libby)	16 Sept 94
	T27N R31W S13NE (Libby)	11 Aug 94
	T29N R32W S12NE (Libby)	26 Aug 95
	T32N R31W S23SW (Libby)	08 Sept 94
	T32N R32W S14NW (Libby)	13 Sept 95
	T32N R32W S14SW (Libby)	13 Sept 95
	T34N R27W S3SE (Rexford)	16 July 95
	T35N R30W S27SE (Rexford)	21 Aug 95
	T35N R30W S33NE (Rexford)	21 Aug 95
	T36N R28W S19NE (Rexford)	22 Aug 95
	T28N R34W S12NE (Three Rivers)	21 Aug 94
	T31N R34W S20SW (Three Rivers)	08 Sept 95
	T34N R31W S6NE (Three Rivers)	25 Aug 95
	T34N R33W S33SE (Three Rivers)	17 Sept 94
	T35N R32W S25SE (Three Rivers)	25 Aug 95
	T35N R33W S1NW (Three Rivers)	19 Aug 94

APPENDIX 4

KNOWN DISTRIBUTION OF BAT SPECIES

ON THE KOOTENAI NATIONAL FOREST, MONTANA

Appendix 4. Bat species presence on Districts of the Kootenai National Forest, Montana.

	Cabinet	Fisher R.	Fortine	Libby	Rexford	Three R.
Myotis sp.	2,3[a]	2,3	2,3	2,3	2,3	2,3
M. californicus	1	1,3		1	1,3	
M. ciliolabrum	1			1	1	
M. evotis	1,2,3	1,2,3	1,3	1,2,3	1,2,3	1,2,3
M. lucifugus	1	1,2	1	1,2	1	1
M. volans	1	1			1,3	1
M. yumanensis	3					
Lasionycteris noctivagans	1,2,3	2,3	1,2,3	1,2,3	1,3	2,3
Eptesicus fuscus	2,3	2,3	2,3	2,3	2,3	2,3
Lasiurus cinereus	3	3	2	3	2	2,3
Corynorhinus townsendii	2,3	3	2	2,3	3	2,3

[a]Sources: Roemer 1994 (1); 1994 field season or Hendricks et al. 1995 (2); 1995 field season (3).

County	Precision	Date	Breed	Data Type

MYOTIS SPP.

Lincoln < .5 mile. 6/30/1994 No Taped Call
Old Historic Ant Flat Ranger Station (FS Rd. 36)

Lincoln < .5 mile. 7/31/1994 No Taped Call
Big Therriault Lake (north end near campground)

Lincoln < .5 mile. 9/ 6/1994 No Taped Call
Blue Lake, ca. 1 mile south of Stryker

Lincoln < .5 mile. 9/16/1994 No Taped Call
Fisher Creek Site #2

Lincoln < .5 mile. 8/11/1994 No Taped Call
Howard Lake (NW shoreline by campground)

Lincoln < .5 mile. 8/11/1994 No Taped Call
Howard Lake outlet stream near campground

Lincoln < .5 mile. 8/15/1994 No Taped Call
S end of Island Lake, Plum Cr. Property

Lincoln < .5 mile. 8/15/1994 No Taped Call
Marsh on SW corner of Island Lake (Plum Cr. prop.)

Lincoln < .5 mile. 9/ 8/1994 No Taped Call
Libby Site #1

Lincoln < .5 mile. 9/ 8/1994 No Taped Call
Creek-marsh draining Howard Lake

Lincoln < .5 mile. 9/ 6/1994 No Taped Call
North of Stillwater River Site #2

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln < .5 mile. 8/20/1994 No Taped Call
7 mi. up Pete Cr. Rd. @ confluence of FS Rd 6134

Lincoln < .5 mile. 9/ 8/1994 No Taped Call
Pipe Creek Site #2

Lincoln < .5 mile. 9/ 8/1994 No Taped Call
Pipe Creek Site #3

Lincoln < .5 mile. 9/ 7/1994 No Taped Call
F.S. Rd. #315 Site #1

Lincoln < .5 mile. 9/ 7/1994 No Taped Call
F.S. Rd. #315 Site #2

Lincoln < .5 mile. 8/17/1994 No Taped Call
Along Lake Koocanusa-Tobacco River

Lincoln < .5 mile. 8/21/1994 No Taped Call
Parking lot & down Ross Creek Cedars Road

Lincoln < .5 mile. 8/21/1994 No Taped Call
Ross Creek Cedars below picnic area over Ross Cr.

Lincoln < .5 mile. 9/ 7/1994 No Taped Call
Jim's "Bog-Lemming Bog" off Sunday Cr.

Lincoln < .5 mile. 8/22/1994 No Taped Call
Sylvan Lake Campgrounds

Lincoln < .5 mile. 8/19/1994 No Taped Call
Whitetail Campground Site #2

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln < .5 mile. 8/20/1994 No Taped Call
Whitetail Campground Site #3

Lincoln < .5 mile. 8/20/1994 No Taped Call
Draw above Whitetail Campground N. of HWY; Site #1

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #1

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #2

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #3

Lincoln < .5 mile. 9/ 8/1995 No Taped Call
Lower Adit of Big 8 Mine

Lincoln < .5 mile. 9/ 9/1995 No Taped Call
Upper Adit of Big 8 Mine

Lincoln < .5 mile. 9/ 9/1995 No Taped Call
Bull Lake - north end

Lincoln < .5 mile. 9/ 9/1995 No Taped Call
Bull Lake - south end

Lincoln < .5 mile. 9/ 9/1995 No Taped Call
Crescent Mine Site

Lincoln < .5 mile. 8/ 6/1995 No Taped Call
Double Mac Mine

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln	< .5 mile.	8/ 4/1995	No	Taped Call
Luken-Hazel Mine II Site				
Lincoln	< .5 mile.	8/ 4/1995	No	Taped Call
Herbert Mine				
Lincoln	< .5 mile.	8/ 5/1995	No	Taped Call
Cherry Creek Mill Site				
Lincoln	< .5 mile.	9/10/1995	No	Taped Call
Midas Mine				
Lincoln	< .5 mile.	9/10/1995	No	Taped Call
FS RD 231				
Lincoln	< .5 mile.	8/ 3/1995	No	Taped Call
Stimson Lumber Company treatment ponds (Libby)				
Lincoln	< .5 mile.	9/11/1995	No	Taped Call
Mitchell Creek Mine				
Lincoln	< .5 mile.	8/ 3/1995	No	Taped Call
Mountain View Park				
Lincoln	< .5 mile.	9/11/1995	No	Taped Call
Vermiculite Mtn./Rainy Cr.-lower pond near gate				
Lincoln	< .5 mile.	9/ 9/1995	No	Taped Call
Rest area 1 mile east of Troy				
Lincoln	< .5 mile.	9/16/1995	No	Taped Call
Wolf Creek #1				

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln Wolf Creek #2	< .5 mile.	9/16/1995	No	Taped Call
Lincoln Wolf Creek #3	< .5 mile.	9/16/1995	No	Taped Call
Lincoln Wolf Creek #4	< .5 mile.	9/16/1995	No	Taped Call
Lincoln Wolf Creek #5	< .5 mile.	9/16/1995	No	Taped Call
Lincoln Elk Creek #2	< .5 mile.	9/18/1995	No	Taped Call
Lincoln Elk Creek #3	< .5 mile.	9/18/1995	No	Taped Call
Lincoln Elk Creek #4	< .5 mile.	9/18/1995	No	Taped Call
Lincoln Elk Creek #5	< .5 mile.	9/18/1995	No	Taped Call
Lincoln Cow Creek #2	< .5 mile.	9/17/1995	No	Taped Call
Lincoln Cow Creek #3	< .5 mile.	9/17/1995	No	Taped Call
Lincoln Cow Creek #4	< .5 mile.	9/17/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln Cow Creek #5	< .5 mile.	9/17/1995	No	Taped Call
Lincoln Canyon Creek #1	< .5 mile.	9/14/1995	No	Taped Call
Lincoln Canyon Creek #2	< .5 mile.	9/14/1995	No	Taped Call
Lincoln Canyon Creek #4	< .5 mile.	9/14/1995	No	Taped Call
Lincoln Fivemile Creek #1	< .5 mile.	9/15/1995	No	Taped Call
Lincoln Fivemile Creek #2	< .5 mile.	9/15/1995	No	Taped Call
Lincoln Fivemile Creek #5	< .5 mile.	9/15/1995	No	Taped Call
Lincoln Sunday Creek #1	< .5 mile.	9/22/1995	No	Taped Call
Lincoln Sunday Creek #3	< .5 mile.	9/22/1995	No	Taped Call
Lincoln Sunday Creek #4	< .5 mile.	9/22/1995	No	Taped Call
Lincoln Sunday Creek #5	< .5 mile.	9/22/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln Grave Creek #3	< .5 mile.	9/21/1995	No	Taped Call
Lincoln Grave Creek #4	< .5 mile.	9/21/1995	No	Taped Call
Lincoln Grave Creek #5	< .5 mile.	9/21/1995	No	Taped Call
Lincoln Deep Creek #2	< .5 mile.	9/20/1995	No	Taped Call
Lincoln Deep Creek #4	< .5 mile.	9/20/1995	No	Taped Call
Lincoln Deep Creek #5	< .5 mile.	9/20/1995	No	Taped Call
Lincoln Bog Lemming site #1	< .5 mile.	8/20/1995	No	Taped Call
Lincoln Bog Lemming site #2	< .5 mile.	8/19/1995	No	Taped Call
Lincoln Bog Lemming Site #4	< .5 mile.	8/21/1995	No	Taped Call
Lincoln Bog Lemming Site #5	< .5 mile.	8/20/1995	No	Taped Call
Lincoln Quartz Creek #1	< .5 mile.	9/13/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln Quartz Creek #3	< .5 mile.	9/13/1995	No	Taped Call
Lincoln Quartz Creek #6	< .5 mile.	9/13/1995	No	Taped Call
Lincoln Granite Creek Site #1	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Granite Creek Site #2	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Granite Creek Site #3	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Granite Creek Site #5	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Big Hoodoo #2	< .5 mile.	8/27/1995	No	Taped Call
Lincoln Big Hoodoo #4	< .5 mile.	8/27/1995	No	Taped Call
Lincoln Zulu Creek Site #2	< .5 mile.	8/25/1995	No	Taped Call
Lincoln Zulu Creek Site #3	< .5 mile.	8/25/1995	No	Taped Call
Lincoln Zulu Creek Site #4	< .5 mile.	8/25/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln Zulu Creek Site #5	< .5 mile.	8/25/1995	No	Taped Call
Lincoln Star Creek #1	< .5 mile.	8/28/1995	No	Taped Call
Lincoln Star Creek #2	< .5 mile.	8/28/1995	No	Taped Call
Lincoln Star Creek #3	< .5 mile.	8/28/1995	No	Taped Call
Lincoln Star Creek #4	< .5 mile.	8/28/1995	No	Taped Call
Lincoln Star Creek #5	< .5 mile.	8/28/1995	No	Taped Call
Lincoln Keeler Creek #2	< .5 mile.	9/ 6/1995	No	Taped Call
Lincoln Keeler Creek #3	< .5 mile.	9/ 6/1995	No	Taped Call
Lincoln Keeler Creek #4	< .5 mile.	9/ 1/1995	No	Taped Call
Lincoln Keeler Creek #6	< .5 mile.	9/ 1/1995	No	Taped Call
Lincoln French Creek #1	< .5 mile.	8/24/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln	< .5 mile.	8/24/1995	No	Taped Call
French Creek #2				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #2				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #3				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #4				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #5				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Blacktail Creek Site #1				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Blacktail Creek Site #4				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Blacktail Creek Site #5				
Lincoln	< .5 mile.	9/ 3/1995	No	Taped Call
Vermillion River #1				
Lincoln	< .5 mile.	9/ 3/1995	No	Taped Call
Vermillion River #3				
Lincoln	< .5 mile.	9/ 3/1995	No	Taped Call
Vermillion River #4				

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln Vermillion River #5	< .5 mile.	9/ 3/1995	No	Taped Call
Lincoln Rock Creek Site #2	< .5 mile.	9/ 5/1995	No	Taped Call
Lincoln Rock Creek Site #5	< .5 mile.	9/ 5/1995	No	Taped Call
Lincoln Marten Creek Site #1	< .5 mile.	9/ 5/1995	No	Taped Call
Lincoln Marten Creek Site #2	< .5 mile.	9/ 5/1995	No	Taped Call
Lincoln Rock Creek Site #3	< .5 mile.	9/ 4/1995	No	Taped Call
Lincoln Big Beaver #1	< .5 mile.	9/23/1995	No	Taped Call
Lincoln Big Beaver #4	< .5 mile.	9/23/1995	No	Taped Call
Lincoln Big Beaver #5	< .5 mile.	9/23/1995	No	Taped Call
Lincoln Sutton Creek #1	< .5 mile.	9/19/1995	No	Taped Call
Lincoln Sutton Creek #2	< .5 mile.	9/19/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln Sutton Creek #3	< .5 mile.	9/19/1995	No	Taped Call
Lincoln Sutton Creek #4	< .5 mile.	9/19/1995	No	Taped Call
Lincoln Sullivan Creek Site #1	< .5 mile.	8/22/1995	No	Taped Call
Lincoln Sullivan Creek Site #2	< .5 mile.	8/22/1995	No	Taped Call
Lincoln Sullivan Creek Site #3	< .5 mile.	8/23/1995	No	Taped Call
Lincoln Sullivan Creek Site #4	< .5 mile.	8/23/1995	No	Taped Call
Lincoln Pinkham Creek Rd. #1	< .5 mile.	7/16/1995	No	Taped Call
Lincoln Pinkham Creek Rd. #4	< .5 mile.	7/15/1995	No	Taped Call
Lincoln Big Creek Site #1	< .5 mile.	8/22/1995	No	Taped Call
Lincoln Big Creek Site #2	< .5 mile.	8/22/1995	No	Taped Call
Lincoln Big Creek Site #3	< .5 mile.	8/22/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Big Creek Site #4				
Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Big Creek Site #5				
Sanders	< .5 mile.	9/19/1994	No	Taped Call
Bull River Site #1				
Sanders	< .5 mile.	9/19/1994	No	Taped Call
Bull River Site #3				
Sanders	< .5 mile.	9/19/1994	No	Taped Call
Bull River Site #4				
Sanders	< .5 mile.	9/19/1994	No	Taped Call
Bull River Site #5				
Sanders	< .5 mile.	8/14/1994	No	Taped Call
Cabinet Gorge Reservoir (HWY 200)				
Sanders	< .5 mile.	8/14/1994	No	Taped Call
Cabinet Gorge Reservoir @ intersection of Bull R.				
Sanders	< .5 mile.	9/18/1994	No	Taped Call
East Fork Bull River Site #1				
Sanders	< .5 mile.	9/18/1994	No	Taped Call
East Fork Bull River Site #2				
Sanders	< .5 mile.	9/18/1994	No	Taped Call
East Fork Bull River Site #4				

County	Precision	Date	Breed	Data Type

MYOTIS SPP. (continued)

Sanders < .5 mile. 9/18/1994 No Taped Call
East Fork Bull River Site #5

LITTLE BROWN MYOTIS

Lincoln < .5 mile. / /1993 No Observation
Ross Creek Cedars

Lincoln .5 to 5 mil / /1993 No Observation
Bull Lake

Lincoln .5 to 5 mil / /1993 No Observation
Bear Creek

Lincoln < .5 mile. / /1993 No Observation
Timberlane Campground

Lincoln .5 to 5 mil / /1993 No Observation
Upper Fortine Creek

Lincoln .5 to 5 mil / /1993 No Observation
Lower Fortine Creek

Lincoln .5 to 5 mil / /1993 No Observation
Sunday Creek

Lincoln < .5 mile. / /1993 No Observation
Sylvan Lake Campground

Lincoln .5 to 5 mil / /1993 No Observation
Weigle Creek

Lincoln .5 to 5 mil / /1993 No Observation
Big Creek

County	Precision	Date	Breed	Data Type

LITTLE BROWN MYOTIS (continued)

Lincoln .5 to 5 mil / /1993 No Observation
Sutton Creek

Lincoln .5 to 5 mil 6/12/1949 No Museum Specimen
3 mi. above mouth of Fisher River

Lincoln .5 to 5 mil 7/ 1/1967 No Museum Specimen
Pumphouse near Libby

Lincoln < .5 mile. 8/20/1992 No Specimen Reported
Sunday Creek

Sanders < .5 mile. / /1993 No Observation
Devils Gap

Sanders 5 to 10 mil / /1993 No Observation
Lower Beaver Creek

YUMA MYOTIS

Sanders < .5 mile. 9/ 4/1995 No Museum Specimen
Marten Creek

LONG-EARED MYOTIS

Lincoln < .5 mile. 9/16/1994 No Taped Call
Fisher Creek Site #2

Lincoln < .5 mile. 8/11/1994 No Taped Call
Howard Lake outlet stream near campground

Lincoln < .5 mile. 8/15/1994 No Taped Call
Marsh on SW corner of Island Lake (Plum Cr. prop.)

County	Precision	Date	Breed	Data Type

LONG-EARED MYOTIS (continued)

Lincoln < .5 mile. 9/ 8/1994 No Taped Call
Creek-marsh draining Howard Lake

Lincoln < .5 mile. 9/ 8/1994 No Taped Call
Pipe Creek Site #1

Lincoln < .5 mile. 8/17/1994 No Taped Call
Along Lake Koocanusa-Tobacco River

Lincoln < .5 mile. 8/21/1994 No Taped Call
Parking lot & down Ross Creek Cedars Road

Lincoln < .5 mile. 8/21/1994 No Taped Call
Ross Creek Cedars below picnic area over Ross Cr.

Lincoln < .5 mile. 8/21/1994 No Taped Call
Bull River Valley @ Ross Cr. turnoff & HWY 56

Lincoln < .5 mile. 8/20/1994 No Taped Call
Draw above Whitetail Campground N. of HWY; Site #1

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #3

Lincoln < .5 mile. / /1993 No Observation
Ross Creek Cedars

Lincoln .5 to 5 mil / /1993 No Observation
Bear Creek

Lincoln < .5 mile. / /1993 No Observation
Timberlane Campground

County	Precision	Date	Breed	Data Type

LONG-EARED MYOTIS (continued)

Lincoln .5 to 5 mil / /1993 No Observation
Lower Fortine Creek

Lincoln < .5 mile. / /1993 No Observation
Sylvan Lake Campground

Lincoln .5 to 5 mil / /1993 No Observation
Weigle Creek

Lincoln < .5 mile. / /1993 No Observation
Camp 32

Lincoln < .5 mile. 8/ 6/1995 No Taped Call
Double Mac Mine

Lincoln < .5 mile. 9/10/1995 No Taped Call
FS Rd. 231

Lincoln < .5 mile. 8/ 3/1995 No Taped Call
Stimson Lumber Company treatment ponds (Libby)

Lincoln < .5 mile. 8/ 3/1995 No Taped Call
Mountain View Park

Lincoln < .5 mile. 9/17/1995 No Taped Call
Cow Creek #1

Lincoln < .5 mile. 9/14/1995 No Taped Call
Canyon Creek #1

Lincoln < .5 mile. 9/21/1995 No Taped Call
Grave Creek #5

County	Precision	Date	Breed	Data Type

LONG-EARED MYOTIS (continued)

Lincoln Granite Creek Site #2	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Star Creek #5	< .5 mile.	8/28/1995	No	Taped Call
Lincoln Keeler Creek #2	< .5 mile.	9/ 6/1995	No	Taped Call
Lincoln Callahan Creek #4	< .5 mile.	9/ 8/1995	No	Taped Call
Lincoln Vermillion River #3	< .5 mile.	9/ 3/1995	No	Taped Call
Lincoln Vermillion River #5	< .5 mile.	9/ 3/1995	No	Taped Call
Lincoln Rock Creek Site #5	< .5 mile.	9/ 5/1995	No	Taped Call
Lincoln Marten Creek Site #1	< .5 mile.	9/ 5/1995	No	Taped Call
Lincoln Rock Creek Site #3	< .5 mile.	9/ 4/1995	No	Taped Call
Lincoln Callahan Creek	< .5 mile.	9/ 8/1995	No	Museum Specimen
Lincoln Big Creek, Rexford Ranger District	.5 to 5 mil	8/21/1995	No	Specimen Reported

County	Precision	Date	Breed	Data Type

LONG-EARED MYOTIS (continued)

Lincoln < .5 mile. 8/26/1995 No Specimen Reported
Double Mac Mine, Granite Creek, Libby Rang. Dist.

Sanders < .5 mile. 9/19/1994 No Taped Call
Bull River Site #1

Sanders < .5 mile. 9/19/1994 No Taped Call
Bull River Site #3

Sanders < .5 mile. 9/19/1994 No Taped Call
Bull River Site #5

Sanders < .5 mile. 8/14/1994 No Taped Call
Cabinet Gorge Reservoir (HWY 200)

Sanders < .5 mile. 8/14/1994 No Taped Call
Cabinet Gorge Reservoir @ intersection of Bull R.

Sanders < .5 mile. 9/18/1994 No Taped Call
East Fork Bull River Site #1

Sanders < .5 mile. 9/18/1994 No Taped Call
East Fork Bull River Site #5

Sanders 5 to 10 mil / /1993 No Observation
Marten Creek

Sanders 5 to 10 mil / /1993 No Observation
Vermillion River

LONG-LEGGED MYOTIS

Lincoln < .5 mile. / /1993 No Observation
Ross Creek Cedars

County	Precision	Date	Breed	Data Type

LONG-LEGGED MYOTIS (continued)

Lincoln Weigle Creek	.5 to 5 mil	/ /1993	No	Observation
Lincoln Big Creek	.5 to 5 mil	/ /1993	No	Observation
Lincoln Sullivan Creek, Rexford Ranger District	.5 to 5 mil	8/22/1995	No	Specimen Reported
Lincoln Young Creek	.5 to 5 mil	/ /1993	No	Observation
Sanders Rock Creek	5 to 10 mil	/ /1993	No	Observation

CALIFORNIA MYOTIS

Lincoln Bear Creek	.5 to 5 mil	/ /1993	No	Observation
Lincoln Five Mile Creek	.5 to 5 mil	/ /1993	No	Observation
Lincoln Sylvan Lake Campground	< .5 mile.	/ /1993	No	Observation
Lincoln Bristow Creek	< .5 mile.	/ /1993	No	Observation
Lincoln Big Creek	.5 to 5 mil	/ /1993	No	Observation
Lincoln Camp 32	< .5 mile.	/ /1993	No	Observation

County	Precision	Date	Breed	Data Type

CALIFORNIA MYOTIS (continued)

Lincoln Young Creek	.5 to 5 mil	/ /1993	No	Observation
Lincoln Five-mile Creek	< .5 mile.	9/15/1995	No	Museum Specimen
Lincoln Sutton Creek	< .5 mile.	9/19/1995	No	Museum Specimen
Lincoln Sutton Creek	< .5 mile.	9/19/1995	No	Museum Specimen
Lincoln Star Creek, Three Rivers Ranger District	.5 to 5 mil	8/28/1995	No	Specimen Reported
Sanders Marten Creek	5 to 10 mil	/ /1993	No	Observation
Sanders Upper Beaver Creek	5 to 10 mil	/ /1993	No	Observation

WESTERN SMALL-FOOTED MYOTIS

Lincoln Timberlane Campground	< .5 mile.	/ /1993	No	Observation
Lincoln Sutton Creek	.5 to 5 mil	/ /1993	No	Observation
Sanders Rock Creek	5 to 10 mil	/ /1993	No	Observation

Natural Heritage Program 09/18/1996
Montana Animal Atlas (Mammal)
Species Report

County	Precision	Date	Breed	Data Type

SILVER-HAIRED BAT

Lincoln < .5 mile. 6/30/1994 No Taped Call
Old Historic Ant Flat Ranger Station (FS Rd. 36)

Lincoln < .5 mile. 9/ 6/1994 No Taped Call
Blue Lake, ca. 1 mile south of Stryker

Lincoln < .5 mile. 9/16/1994 No Taped Call
Fisher Creek Site #2

Lincoln < .5 mile. 9/16/1994 No Taped Call
Fisher Creek Site #2

Lincoln < .5 mile. 8/11/1994 No Taped Call
Howard Lake (NW shoreline by campground)

Lincoln < .5 mile. 8/11/1994 No Taped Call
Howard Lake outlet stream near campground

Lincoln < .5 mile. 8/15/1994 No Taped Call
S end of Island Lake, Plum Cr. Property

Lincoln < .5 mile. 9/ 6/1994 No Taped Call
North of Stillwater River Site #2

Lincoln < .5 mile. 8/20/1994 No Taped Call
7 mi. up Pete Cr. Rd. @ confluence of FS Rd 6134

Lincoln < .5 mile. 9/ 8/1994 No Taped Call
Pipe Creek Site #2

Lincoln < .5 mile. 9/ 7/1994 No Taped Call
F.S. Rd. #315 Site #4 (just below milepost 16)

County	Precision	Date	Breed	Data Type

SILVER-HAIRED BAT (continued)

Lincoln < .5 mile. 8/21/1994 No Taped Call
Ross Creek Cedars below picnic area over Ross Cr.

Lincoln < .5 mile. 8/21/1994 No Taped Call
Bull River Valley @ Ross Cr. turnoff & HWY 56

Lincoln < .5 mile. 9/ 7/1994 No Taped Call
Jim's "Bog-Lemming Bog" off Sunday Cr.

Lincoln < .5 mile. 8/22/1994 No Taped Call
Sylvan Lake Campgrounds

Lincoln < .5 mile. 8/19/1994 No Taped Call
Whitetail Campground Site #2

Lincoln < .5 mile. 8/20/1994 No Taped Call
Whitetail Campground Site #3

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #1

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #2

Lincoln .5 to 5 mil / /1993 No Observation
Bear Creek

Lincoln .5 to 5 mil / /1993 No Observation
Upper Fortine Creek

Lincoln .5 to 5 mil / /1993 No Observation
Lower Fortine Creek

County	Precision	Date	Breed	Data Type

SILVER-HAIRED BAT (continued)

Lincoln	.5 to 5 mil	/ /1993	No	Observation
Young Creek				
Lincoln	< .5 mile.	9/ 9/1995	No	Taped Call
Upper Adit of Big 8 Mine				
Lincoln	< .5 mile.	9/ 9/1995	No	Taped Call
Bull Lake - south end				
Lincoln	< .5 mile.	8/ 6/1995	No	Taped Call
Double Mac Mine				
Lincoln	< .5 mile.	8/ 4/1995	No	Taped Call
Luken-Hazel Mine II Site				
Lincoln	< .5 mile.	8/ 5/1995	No	Taped Call
Cherry Creek Mill Site				
Lincoln	< .5 mile.	9/10/1995	No	Taped Call
Swamp Creek				
Lincoln	< .5 mile.	9/10/1995	No	Taped Call
Libby Rd (FS Rd 231 @ junct. with Poker Hill Rd.)				
Lincoln	< .5 mile.	9/10/1995	No	Taped Call
Midas Mine				
Lincoln	< .5 mile.	9/10/1995	No	Taped Call
FS Road 231				
Lincoln	< .5 mile.	9/11/1995	No	Taped Call
Mitchell Creek Mine				

County	Precision	Date	Breed	Data Type

SILVER-HAIRED BAT (continued)

Lincoln < .5 mile. 9/11/1995 No Taped Call
Vermiculite Mtn./Rainy Cr.-lower pond near gate

Lincoln < .5 mile. 9/ 9/1995 No Taped Call
Rest area 1 mile east of Troy

Lincoln < .5 mile. 9/16/1995 No Taped Call
Wolf Creek #2

Lincoln < .5 mile. 9/18/1995 No Taped Call
Elk Creek #2

Lincoln < .5 mile. 9/17/1995 No Taped Call
Cow Creek #4

Lincoln < .5 mile. 9/17/1995 No Taped Call
Cow Creek #5

Lincoln < .5 mile. 9/14/1995 No Taped Call
Canyon Creek #1

Lincoln < .5 mile. 9/14/1995 No Taped Call
Canyon Creek #2

Lincoln < .5 mile. 9/14/1995 No Taped Call
Canyon Creek #3

Lincoln < .5 mile. 9/14/1995 No Taped Call
Canyon Creek #4

Lincoln < .5 mile. 9/15/1995 No Taped Call
Fivemile Creek #1

Lincoln < .5 mile. 9/15/1995 No Taped Call
Fivemile Creek #5

County	Precision	Date	Breed	Data Type

SILVER-HAIRED BAT (continued)

Lincoln Sunday Creek #3	< .5 mile.	9/22/1995	No	Taped Call
Lincoln Bog Lemming site #1	< .5 mile.	8/20/1995	No	Taped Call
Lincoln Bog Lemming Site #5	< .5 mile.	8/20/1995	No	Taped Call
Lincoln Quartz Creek #3	< .5 mile.	9/13/1995	No	Taped Call
Lincoln Granite Creek Site #1	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Granite Creek Site #3	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Zulu Creek Site #3	< .5 mile.	8/25/1995	No	Taped Call
Lincoln Zulu Creek Site #5	< .5 mile.	8/25/1995	No	Taped Call
Lincoln Star Creek #2	< .5 mile.	8/28/1995	No	Taped Call
Lincoln Keeler Creek #3	< .5 mile.	9/ 6/1995	No	Taped Call
Lincoln French Creek #2	< .5 mile.	8/24/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

SILVER-HAIRED BAT (continued)

Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #2				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #3				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Blacktail Creek Site #4				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Blacktail Creek Site #5				
Lincoln	< .5 mile.	9/ 4/1995	No	Taped Call
Rock Creek Site #3				
Lincoln	< .5 mile.	9/23/1995	No	Taped Call
Big Beaver #1				
Lincoln	< .5 mile.	9/23/1995	No	Taped Call
Big Beaver #4				
Lincoln	< .5 mile.	9/19/1995	No	Taped Call
Sutton Creek #1				
Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Sullivan Creek Site #2				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Sullivan Creek Site #3				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Sullivan Creek Site #4				

County	Precision	Date	Breed	Data Type

SILVER-HAIRED BAT (continued)

Lincoln < .5 mile. 8/22/1995 No Taped Call
Big Creek Site #2

Lincoln < .5 mile. 8/22/1995 No Taped Call
Big Creek Site #3

Lincoln < .5 mile. 8/22/1995 No Taped Call
Big Creek Site #5

Sanders < .5 mile. 9/19/1994 No Taped Call
Bull River Site #1

Sanders < .5 mile. 8/14/1994 No Taped Call
Cabinet Gorge Reservoir (HWY 200)

Sanders 5 to 10 mil / /1993 No Observation
Rock Creek

Sanders 5 to 10 mil / /1993 No Observation
Lower Beaver Creek

Sanders < .5 mile. 9/ 9/1995 No Taped Call
Bull River Guard Station

BIG BROWN BAT

Lincoln < .5 mile. 6/30/1994 No Taped Call
Old Historic Ant Flat Ranger Station (FS Rd. 36)

Lincoln < .5 mile. 9/ 6/1994 No Taped Call
Blue Lake, ca. 1 mile south of Stryker

Lincoln < .5 mile. 8/11/1994 No Taped Call
Howard Lake (NW shoreline by campground)

County	Precision	Date	Breed	Data Type

BIG BROWN BAT (continued)

Lincoln	< .5 mile.	8/15/1994	No	Taped Call
S end of Island Lake, Plum Cr. Property				
Lincoln	< .5 mile.	9/ 8/1994	No	Taped Call
Libby Site #1				
Lincoln	< .5 mile.	9/ 8/1994	No	Taped Call
Creek-marsh draining Howard Lake				
Lincoln	< .5 mile.	8/20/1994	No	Taped Call
7 mi. up Pete Cr. Rd. @ confluence of FS Rd 6134				
Lincoln	< .5 mile.	9/ 8/1994	No	Taped Call
Pipe Creek Site #2				
Lincoln	< .5 mile.	8/17/1994	No	Taped Call
Along Lake Koocanusa-Tobacco River				
Lincoln	< .5 mile.	8/21/1994	No	Taped Call
Ross Creek Cedars below picnic area over Ross Cr.				
Lincoln	< .5 mile.	8/19/1994	No	Taped Call
Whitetail Campground Site #2				
Lincoln	< .5 mile.	8/20/1994	No	Taped Call
Whitetail Campground Site #3				
Lincoln	< .5 mile.	9/17/1994	No	Taped Call
Yaak River Site #2				
Lincoln	< .5 mile.	9/17/1994	No	Taped Call
Yaak River Site #3				

County	Precision	Date	Breed	Data Type

BIG BROWN BAT (continued)

Lincoln	< .5 mile.	9/ 9/1995	No	Taped Call
Upper Adit of Big 8 Mine				
Lincoln	< .5 mile.	9/ 9/1995	No	Taped Call
Bull Lake - north end				
Lincoln	< .5 mile.	9/ 9/1995	No	Taped Call
Bull Lake - south end				
Lincoln	< .5 mile.	8/ 4/1995	No	Taped Call
Luken-Hazel Mine II Site				
Lincoln	< .5 mile.	8/ 5/1995	No	Taped Call
Cherry Creek Mill Site				
Lincoln	< .5 mile.	9/10/1995	No	Taped Call
FS Rd. 231				
Lincoln	< .5 mile.	9/11/1995	No	Taped Call
Mitchell Creek Mine				
Lincoln	< .5 mile.	8/ 3/1995	No	Taped Call
Mountain View Park				
Lincoln	< .5 mile.	9/11/1995	No	Taped Call
Vermiculite Mtn./Rainy Cr.-lower pond near gate				
Lincoln	< .5 mile.	8/ 5/1995	No	Taped Call
Snowshoe Mine - highest open adit				
Lincoln	< .5 mile.	9/16/1995	No	Taped Call
Wolf Creek #2				

County	Precision	Date	Breed	Data Type

BIG BROWN BAT (continued)

Lincoln Wolf Creek #3	< .5 mile.	9/16/1995	No	Taped Call
Lincoln Wolf Creek #5	< .5 mile.	9/16/1995	No	Taped Call
Lincoln Elk Creek #2	< .5 mile.	9/18/1995	No	Taped Call
Lincoln Elk Creek #4	< .5 mile.	9/18/1995	No	Taped Call
Lincoln Elk Creek #5	< .5 mile.	9/18/1995	No	Taped Call
Lincoln Canyon Creek #1	< .5 mile.	9/14/1995	No	Taped Call
Lincoln Canyon Creek #4	< .5 mile.	9/14/1995	No	Taped Call
Lincoln Fivemile Creek #1	< .5 mile.	9/15/1995	No	Taped Call
Lincoln Fivemile Creek #5	< .5 mile.	9/15/1995	No	Taped Call
Lincoln Sunday Creek #1	< .5 mile.	9/22/1995	No	Taped Call
Lincoln Sunday Creek #3	< .5 mile.	9/22/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

BIG BROWN BAT (continued)

Lincoln Grave Creek #3	< .5 mile.	9/21/1995	No	Taped Call
Lincoln Bog Lemming site #1	< .5 mile.	8/20/1995	No	Taped Call
Lincoln Quartz Creek #3	< .5 mile.	9/13/1995	No	Taped Call
Lincoln Quartz Creek #6	< .5 mile.	9/13/1995	No	Taped Call
Lincoln Granite Creek Site #1	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Granite Creek Site #2	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Granite Creek Site #3	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Granite Creek Site #5	< .5 mile.	8/26/1995	No	Taped Call
Lincoln Big Hoodoo #4	< .5 mile.	8/27/1995	No	Taped Call
Lincoln Zulu Creek Site #3	< .5 mile.	8/25/1995	No	Taped Call
Lincoln Zulu Creek Site #4	< .5 mile.	8/25/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

BIG BROWN BAT (continued)

Lincoln	< .5 mile.	8/25/1995	No	Taped Call
Zulu Creek Site #5				
Lincoln	< .5 mile.	9/ 6/1995	No	Taped Call
Keeler Creek #3				
Lincoln	< .5 mile.	9/ 1/1995	No	Taped Call
Keeler Creek #6				
Lincoln	< .5 mile.	8/24/1995	No	Taped Call
French Creek #1				
Lincoln	< .5 mile.	8/24/1995	No	Taped Call
French Creek #2				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #2				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #4				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #5				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Blacktail Creek Site #1				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Blacktail Creek Site #4				
Lincoln	< .5 mile.	8/23/1995	No	Taped Call
Blacktail Creek Site #5				

County	Precision	Date	Breed	Data Type

BIG BROWN BAT (continued)

Lincoln Vermillion River #1	< .5 mile.	9/ 3/1995	No	Taped Call
Lincoln Vermillion River #3	< .5 mile.	9/ 3/1995	No	Taped Call
Lincoln Vermillion River #5	< .5 mile.	9/ 3/1995	No	Taped Call
Lincoln Rock Creek Site #3	< .5 mile.	9/ 4/1995	No	Taped Call
Lincoln Big Beaver #1	< .5 mile.	9/23/1995	No	Taped Call
Lincoln Big Beaver #5	< .5 mile.	9/23/1995	No	Taped Call
Lincoln Sullivan Creek Site #1	< .5 mile.	8/22/1995	No	Taped Call
Lincoln Sullivan Creek Site #2	< .5 mile.	8/22/1995	No	Taped Call
Lincoln Sullivan Creek Site #3	< .5 mile.	8/23/1995	No	Taped Call
Lincoln Big Creek Site #2	< .5 mile.	8/22/1995	No	Taped Call
Lincoln Big Creek Site #3	< .5 mile.	8/22/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

BIG BROWN BAT (continued)

Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Big Creek Site #4				
Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Big Creek Site #5				
Sanders	< .5 mile.	9/19/1994	No	Taped Call
Bull River Site #1				
Sanders	< .5 mile.	8/14/1994	No	Taped Call
Cabinet Gorge Reservoir (HWY 200)				
Sanders	< .5 mile.	8/14/1994	No	Taped Call
Cabinet Gorge Reservoir @ intersection of Bull R.				
Sanders	< .5 mile.	9/18/1994	No	Taped Call
East Fork Bull River Site #1				

HOARY BAT

Lincoln	< .5 mile.	9/ 6/1994	No	TapedCall
Blue Lake, ca. 1 mile south of Stryker				
Lincoln	< .5 mile.	8/20/1994	No	Taped Call
7 mi. up Pete Cr. Rd. @ confluence of FS Rd 6134				
Lincoln	< .5 mile.	9/ 7/1994	No	Taped Call
F.S. Rd. #315 Site #2				
Lincoln	< .5 mile.	8/17/1994	No	Taped Call
Along Lake Koocanusa-Tobacco River				
Lincoln	< .5 mile.	8/21/1994	No	Taped Call
Ross Creek Cedars below picnic area over Ross Cr.				

County	Precision	Date	Breed	Data Type

HOARY BAT (continued)

Lincoln < .5 mile. 8/21/1994 No Taped Call
Bull River Valley @ Ross Cr. turnoff & HWY 56

Lincoln < .5 mile. 9/ 7/1994 No Taped Call
Jim's "Bog-Lemming Bog" off Sunday Cr.

Lincoln < .5 mile. 8/19/1994 No Taped Call
Whitetail Campground Site #2

Lincoln < .5 mile. 8/20/1994 No Taped Call
Whitetail Campground Site #3

Lincoln < .5 mile. 8/ 4/1995 No Taped Call
Luken-Hazel Mine II Site

Lincoln < .5 mile. 8/ 5/1995 No Taped Call
Cherry Creek Mill site

Lincoln < .5 mile. 9/10/1995 No Taped Call
FS Rd. 231

Lincoln < .5 mile. 8/ 3/1995 No Taped Call
Stimson Lumbar Company treatment ponds (Libby)

Lincoln < .5 mile. 8/ 3/1995 No Taped Call
Mountain View Park

Lincoln < .5 mile. 9/15/1995 No Taped Call
Fivemile Creek #1

Lincoln < .5 mile. 9/13/1995 No Taped Call
Quartz Creek #3

County	Precision	Date	Breed	Data Type

HOARY BAT (continued)

Lincoln < .5 mile. 8/27/1995 No Taped Call
Big Hoodoo #2

Lincoln < .5 mile. 9/ 8/1995 No Taped Call
Callahan Creek #2

Lincoln < .5 mile. 9/ 8/1995 No Taped Call
Callahan Creek #4

Lincoln < .5 mile. 9/ 5/1995 No Taped Call
Marten Creek Site #1

TOWNSEND'S BIG-EARED BAT

Lincoln < .5 mile. 6/30/1994 No Taped Call
Old Historic Ant Flat Ranger Station (FS Rd. 36)

Lincoln < .5 mile. 9/ 6/1994 No Taped Call
Blue Lake, ca. 1 mile south of Stryker

Lincoln < .5 mile. 9/16/1994 No Taped Call
Fisher Creek Site #2

Lincoln < .5 mile. 8/11/1994 No Taped Call
Howard Lake (NW shoreline by campground)

Lincoln < .5 mile. 9/ 6/1994 No Taped Call
North of Stillwater River Site #2

Lincoln < .5 mile. 9/ 8/1994 No Taped Call
Pipe Creek Site #3

Lincoln < .5 mile. 9/ 7/1994 No Taped Call
F.S. Rd. #315 Site #2

County	Precision	Date	Breed	Data Type

TOWNSEND'S BIG-EARED BAT (continued)

Lincoln < .5 mile. 8/21/1994 No Taped Call
Parking lot & down Ross Creek Cedars Road

Lincoln < .5 mile. 9/ 7/1994 No Taped Call
Jim's "Bog-Lemming Bog" off Sunday Cr.

Lincoln < .5 mile. 8/19/1994 No Taped Call
Whitetail Campground Site #2

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #1

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #2

Lincoln < .5 mile. 9/17/1994 No Taped Call
Yaak River Site #3

Lincoln < .5 mile. 9/ 9/1995 No Taped Call
Upper Adit of Big 8 Mine

Lincoln < .5 mile. 8/ 6/1995 No Taped Call
Double Mac Mine

Lincoln < .5 mile. 8/ 4/1995 No Taped Call
Luken-Hazel Mine II Site

Lincoln < .5 mile. 8/ 5/1995 No Taped Call
Herbert Mine

Lincoln < .5 mile. 8/ 5/1995 No Taped Call
Cherry Creek Mill Site

County	Precision	Date	Breed	Data Type

TOWNSEND'S BIG-EARED BAT (continued)

Lincoln RS Road 231	< .5 mile.	9/10/1995	No	Taped Call
Lincoln Wolf Creek #4	< .5 mile.	9/16/1995	No	Taped Call
Lincoln Wolf Creek #5	< .5 mile.	9/16/1995	No	Taped Call
Lincoln Cow Creek #1	< .5 mile.	9/17/1995	No	Taped Call
Lincoln Cow Creek #2	< .5 mile.	9/17/1995	No	Taped Call
Lincoln Canyon Creek #1	< .5 mile.	9/14/1995	No	Taped Call
Lincoln Canyon Creek #4	< .5 mile.	9/14/1995	No	Taped Call
Lincoln Fivemile Creek #1	< .5 mile.	9/15/1995	No	Taped Call
Lincoln Fivemile Creek #5	< .5 mile.	9/15/1995	No	Taped Call
Lincoln Quartz Creek #3	< .5 mile.	9/13/1995	No	Taped Call
Lincoln Quartz Creek #6	< .5 mile.	9/13/1995	No	Taped Call

County	Precision	Date	Breed	Data Type

TOWNSEND'S BIG-EARED BAT (continued)

Lincoln	< .5 mile.	8/26/1995	No	Taped Call
Granite Creek Site #5				
Lincoln	< .5 mile.	8/25/1995	No	Taped Call
Zulu Creek Site #3				
Lincoln	< .5 mile.	8/25/1995	No	Taped Call
Zulu Creek Site #4				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #2				
Lincoln	< .5 mile.	9/ 8/1995	No	Taped Call
Callahan Creek #4				
Lincoln	< .5 mile.	9/ 3/1995	No	Taped Call
Vermillion River #1				
Lincoln	< .5 mile.	9/ 3/1995	No	Taped Call
Vermillion River #5				
Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Sullivan Creek Site #2				
Lincoln	< .5 mile.	7/16/1995	No	Taped Call
Pinkham Creek Rd. #1				
Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Big Creek Site #2				
Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Big Creek Site #3				

County	Precision	Date	Breed	Data Type

TOWNSEND'S BIG-EARED BAT (continued)

Lincoln	< .5 mile.	8/22/1995	No	Taped Call
Big Creek Site #4				
Lincoln	< .5 mile.	9/ 8/1995	No	Observation
Snowstorm Mine				
Sanders	< .5 mile.	9/19/1994	No	Taped Call
Bull River Site #1				
Sanders	< .5 mile.	9/19/1994	No	Taped Call
Bull River Site #3				
Sanders	< .5 mile.	9/19/1994	No	Taped Call
Bull River Site #5				
Sanders	< .5 mile.	8/14/1994	No	Taped Call
Cabinet Gorge Reservoir (HWY 200)				
Sanders	< .5 mile.	9/18/1994	No	Taped Call
East Fork Bull River Site #1				
Sanders	< .5 mile.	9/18/1994	No	Taped Call
East Fork Bull River Site #5				